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# EW FOREST FRONTIERS

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U.S. Department of Agriculture

## *for:* Jobs
## Permanent Communities
## A Stronger Nation

84M
eg

U.S. Forest service.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
MISCELLANEOUS PUBLICATION NO. 414

# FOREWORD

MUCH OF OUR rural poverty is within forest regions with large areas of poor soils. Here, vanishing forest resources and forest industries leave farm people and rural communities stranded, minus the employment in the forest and the income from the forest so much needed to supplement the meager returns from their cultivated crops.

Wretched living conditions mean abject people. With nothing to defend and morale gone, no people could fight long against an invading enemy.

Battles on the economic front never cease; they are more devastating during war, to be sure, but relentless even during peace. So a country should never be caught without a full measure of the services and products supplied from forest lands.

If forests and their products should vanish, so would tables, floors, beds, newspapers, books, boxes, electric lines, railroads, and thousands of other necessities, along with millions of homes and millions of jobs.

Rain would muddy the water, fill the reservoirs with debris, ruin the hydroelectric plants, and bring flood damage the like of which we never saw before.

Between rains you would wonder what had become of the water supply.

But this can't happen here. It will not happen here. Somehow, sometime, this Nation will realize fully its dependence upon forests in both peace and war. It is already moving in the direction of forest conservation, dangerously slow to be sure, and the longer the delay the greater the cost. Eventually it will put its forest lands in order. It will make them produce abundantly and perpetually the necessities and jobs they now supply. And, too, it will develop from its forests new uses, new industries, new jobs, new services to mankind. Advancement by one short year of such a forest economy will pay for itself many thousandfold.

Earle H Clapp

Acting Chief, Forest Service.

# NEW FOREST FRONTIERS

U. S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Miscellaneous Publication No. 414 - - - - April 1941

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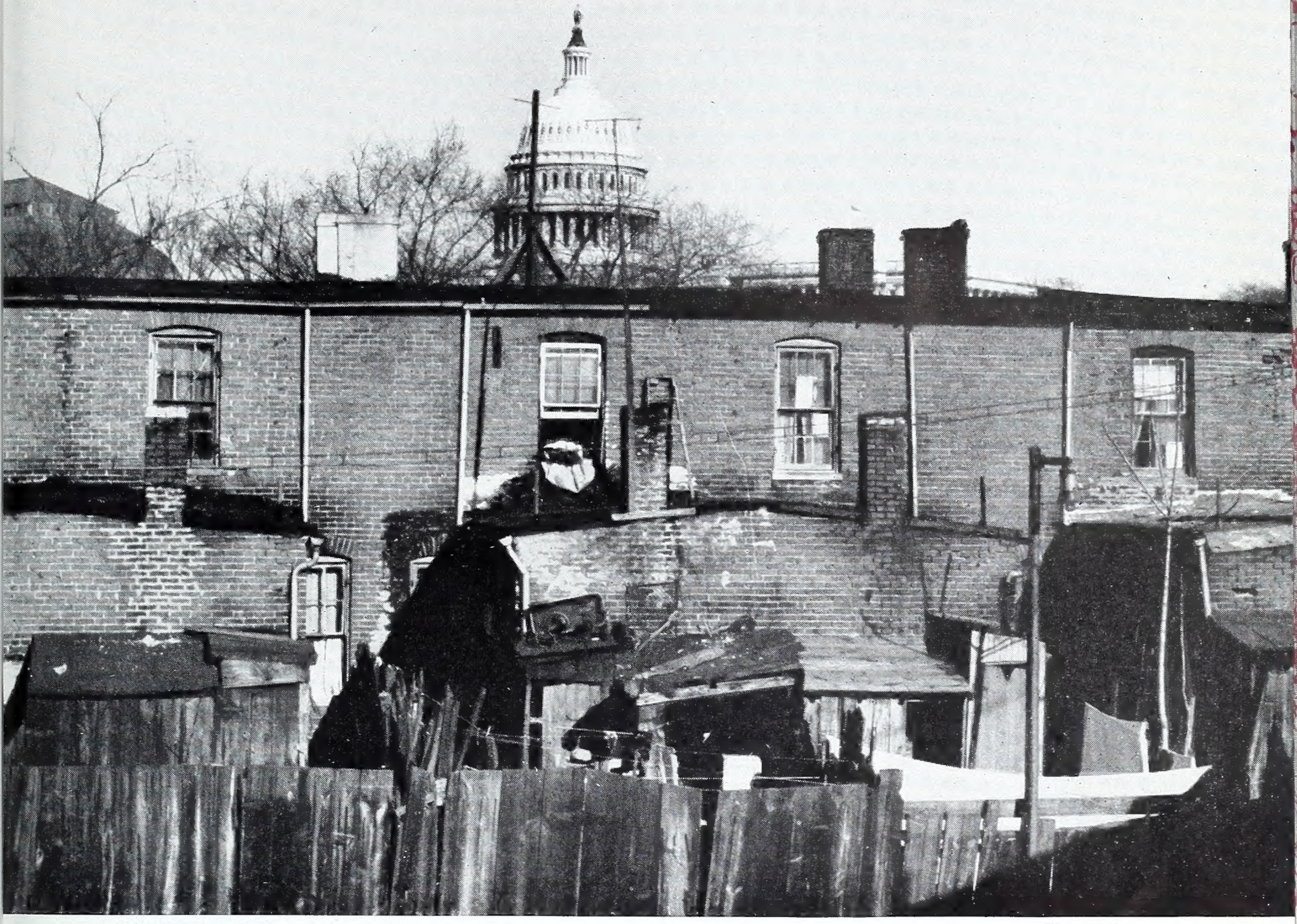
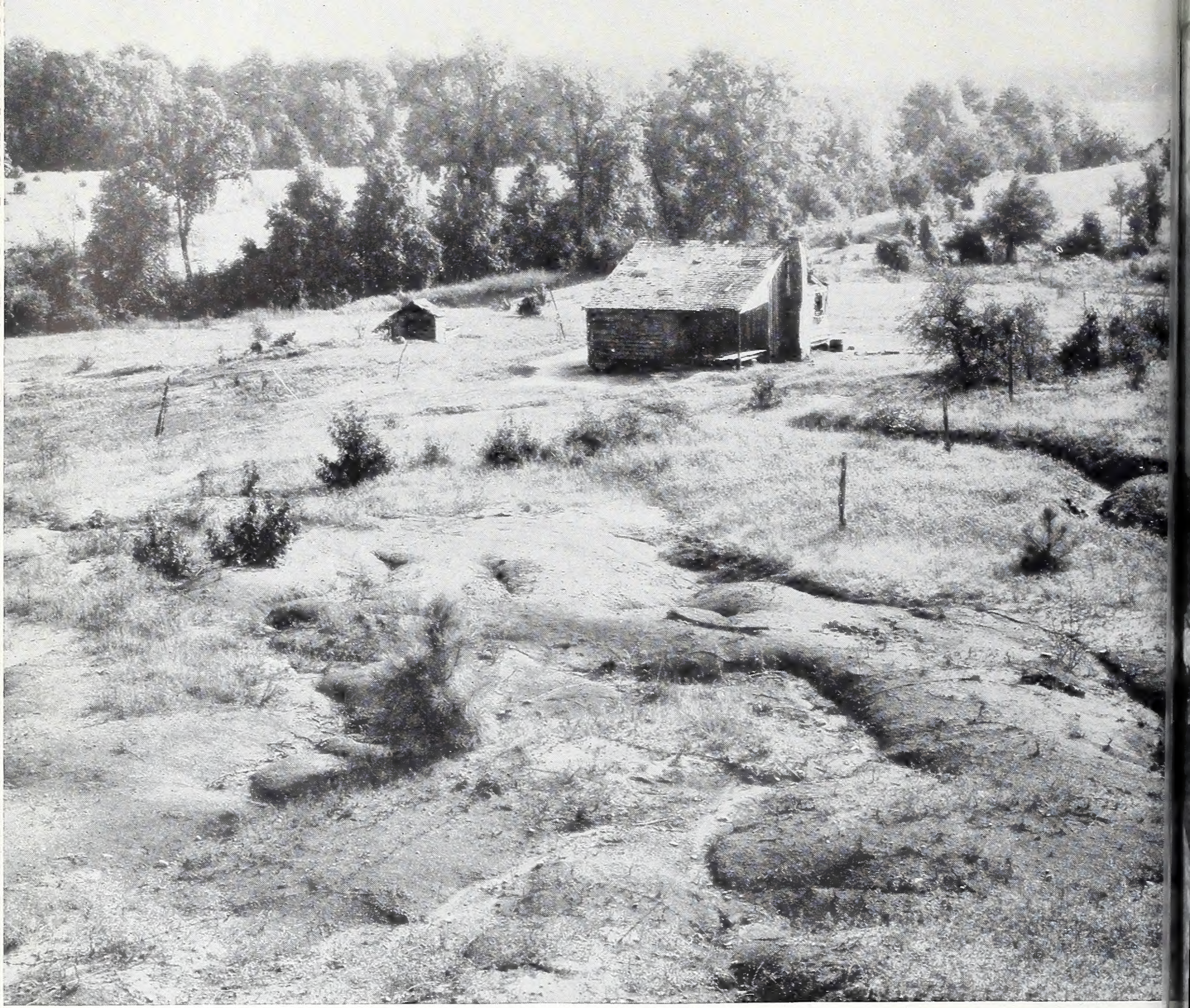


FSA–1049M5

SERIOUS want in the midst of plenty—the
great American paradox—



F-372813

CHRONIC distress in our basic agriculture—

FSA-10150D

Unemployment and low standards of living for vast numbers of people—these are some of the social and economic problems facing the United States today which arrest attention and demand action. No sound opportunity to alleviate distress, strengthen morale, and drive futility from the minds of our people should be overlooked, especially in times of national emergency.

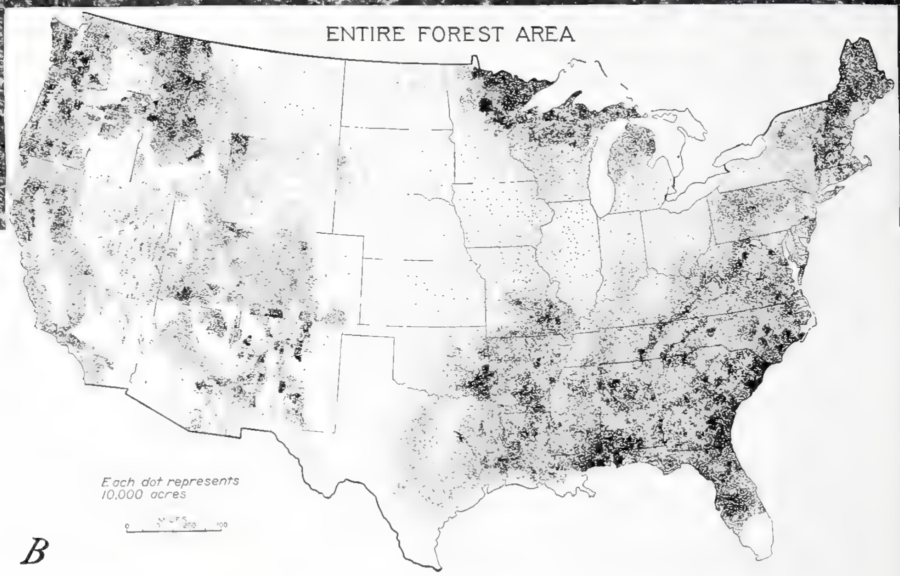
SCS PHOTO

THESE problems seem more acute than at any previous time because it is no longer possible to recoup losses and relieve economic pressures simply by moving on to new lands. Gone are free farm lands, free ranges, free forests, and free natural resources in general.

F-390212

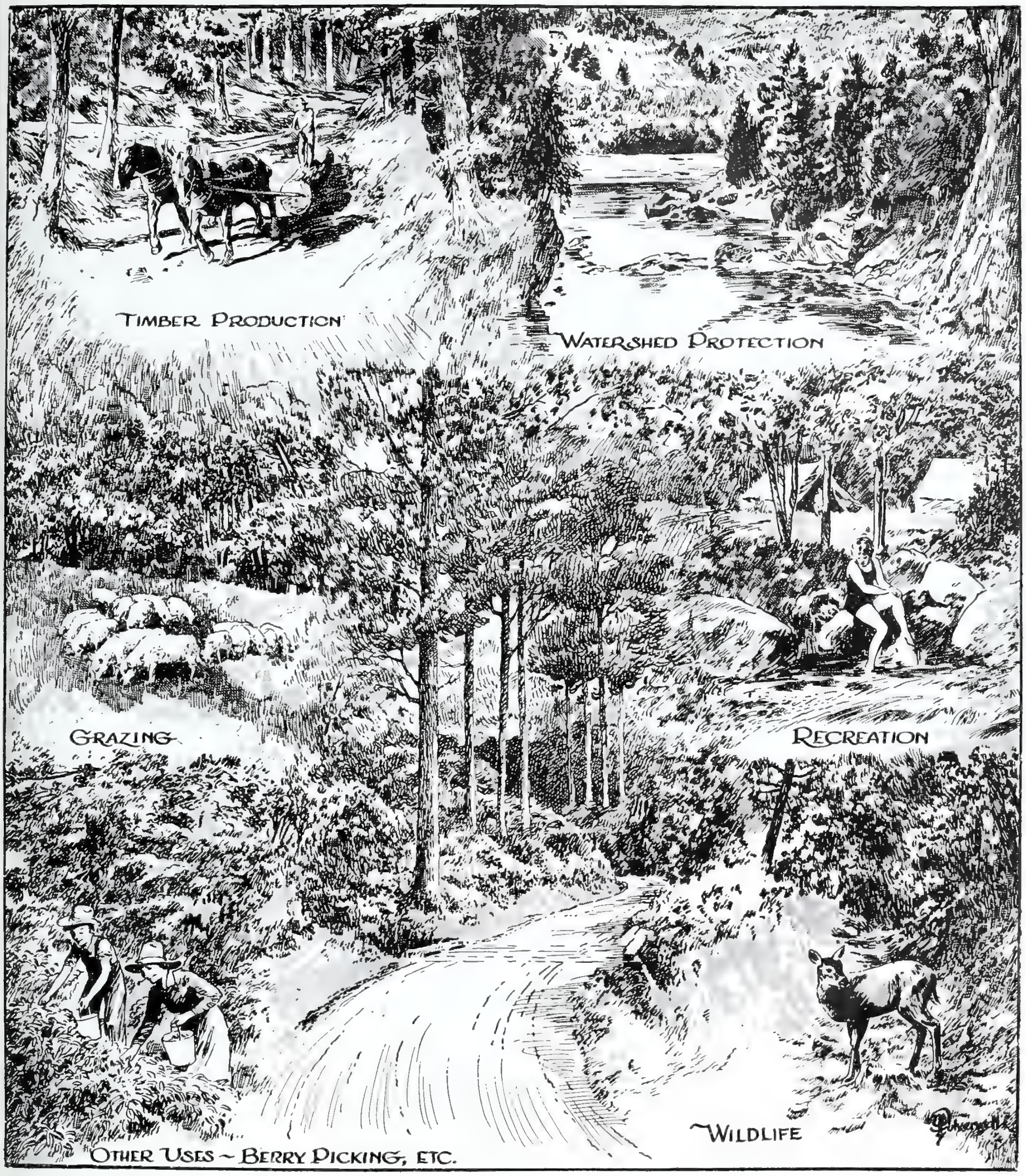
FORTUNATELY, some of the natural resources can be renewed and managed for perpetual production. We can thus help to create a new frontier on a sounder and far more permanent basis than the old—a frontier that will not merely allay our social and economic problems and postpone the day on which they must be met but also contribute toward a sound and lasting solution.

F-351959 AND F-308989



*B*

AMERICAN forests are one of the most important of the renewable resources. They occupy one-third of our country, an area exceeding the homelands of 230 million people in Europe. American forests cover a vast area. They should also afford vast opportunity.



F-395342

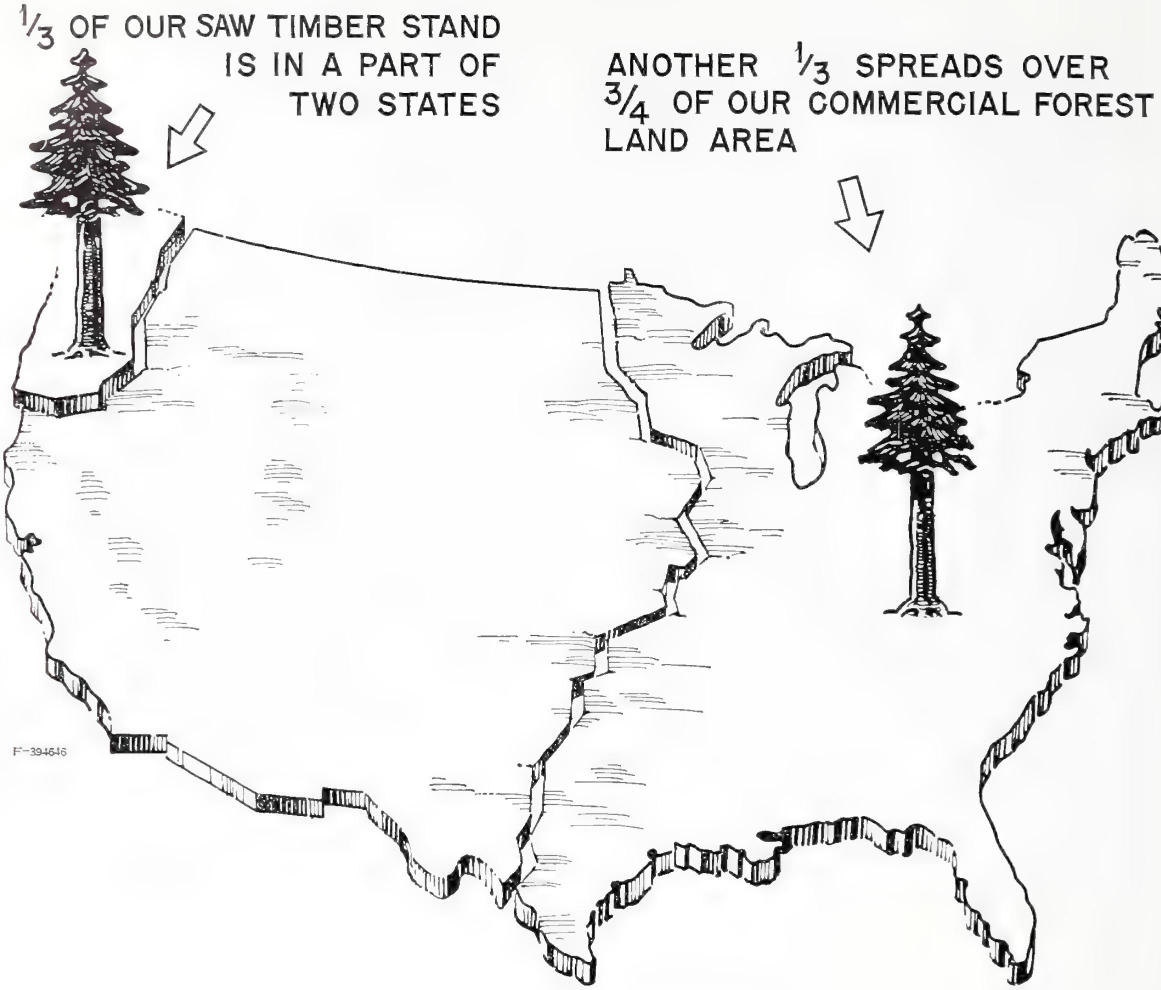
AMERICAN forests can be used for several major purposes at the same time, so that in effect their value and services are multiplied.

F-383248

THE UNITED STATES now uses half the lumber, more than half the paper, and two-fifths of the wood in all forms consumed in the world.

F–373914

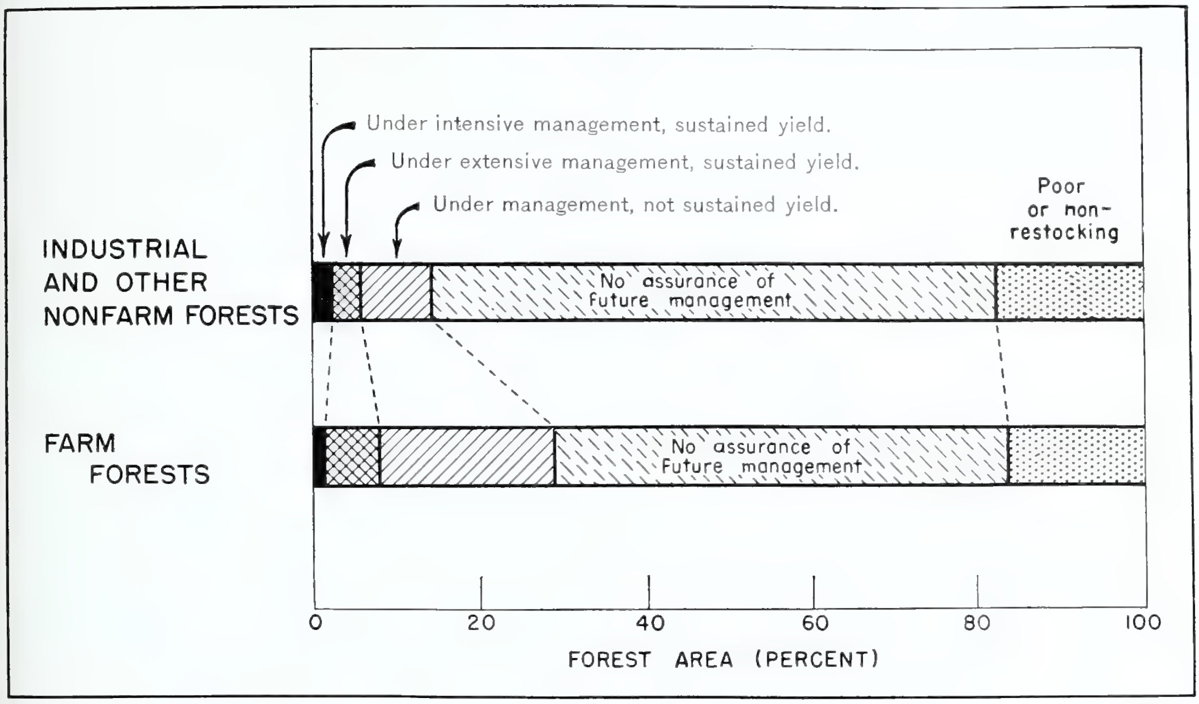
MANUFACTURE of useful products from this type of raw material provides employment for millions of men and makes large pay rolls.



1/3 OF OUR SAW TIMBER STAND IS IN A PART OF TWO STATES
ANOTHER 1/3 SPREADS OVER 3/4 OF OUR COMMERCIAL FOREST LAND AREA
F-394546

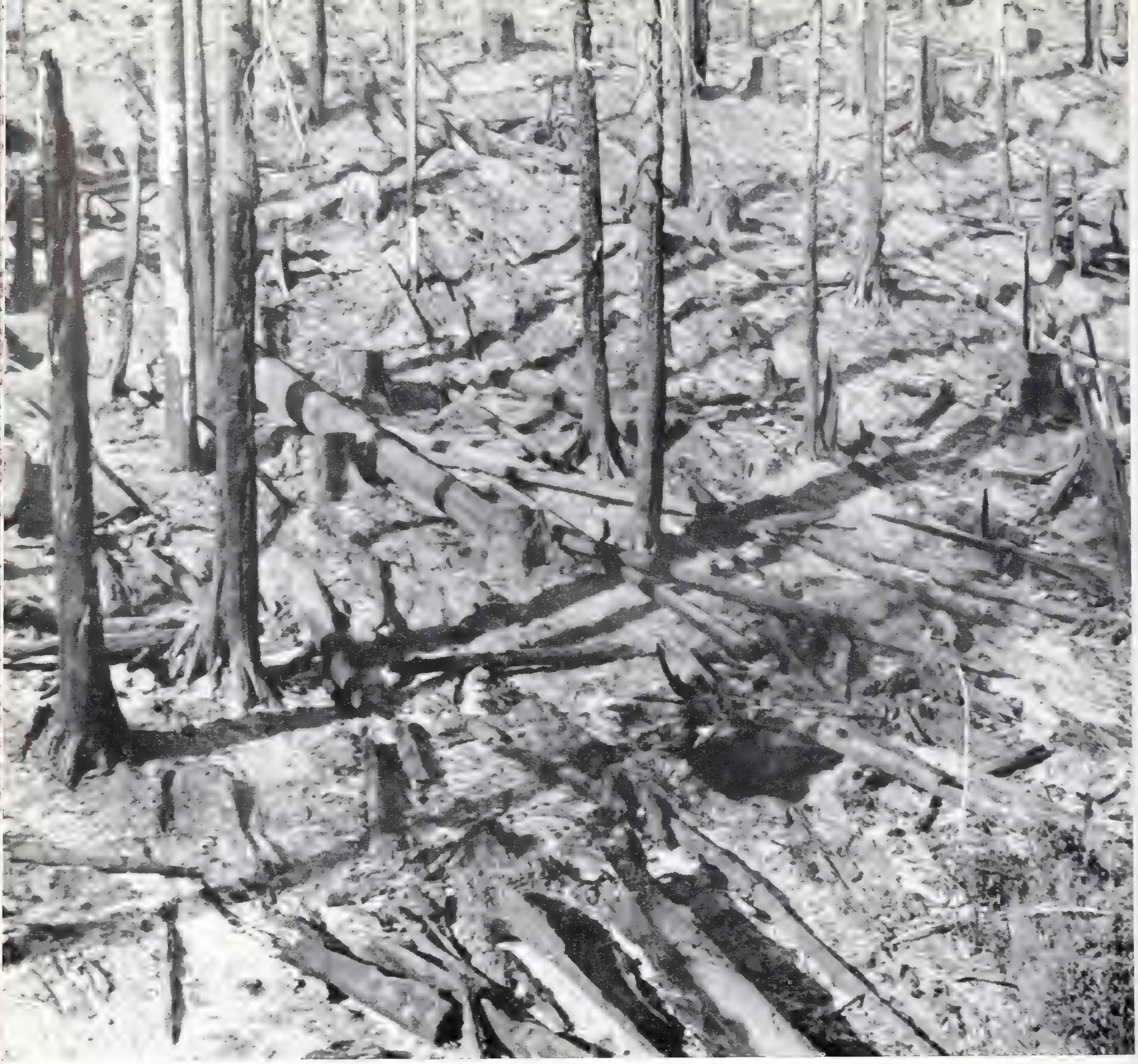
BUT less than one-fourth of the original saw timber stand remains. More than one-third of this is in western Oregon and Washington, while the East with three-fourths of the land and four-fifths of the people has less than one-third of the timber.

## CHARACTER OF FOREST MANAGEMENT
### PRIVATE LANDS

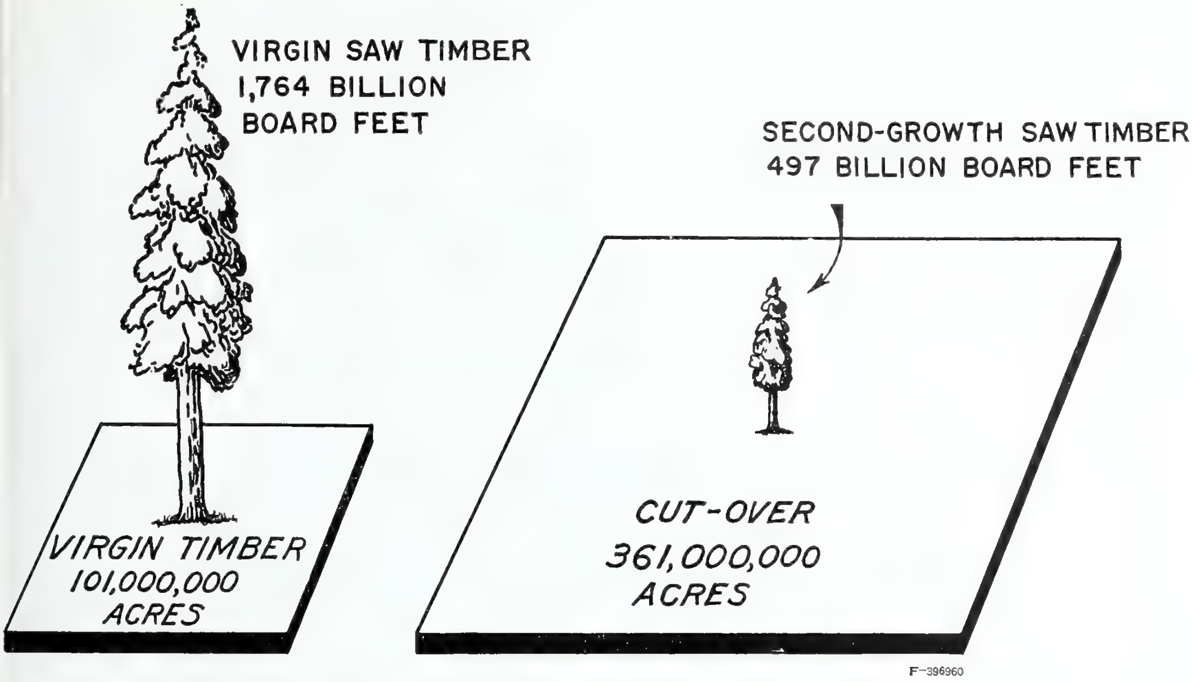


F-396959

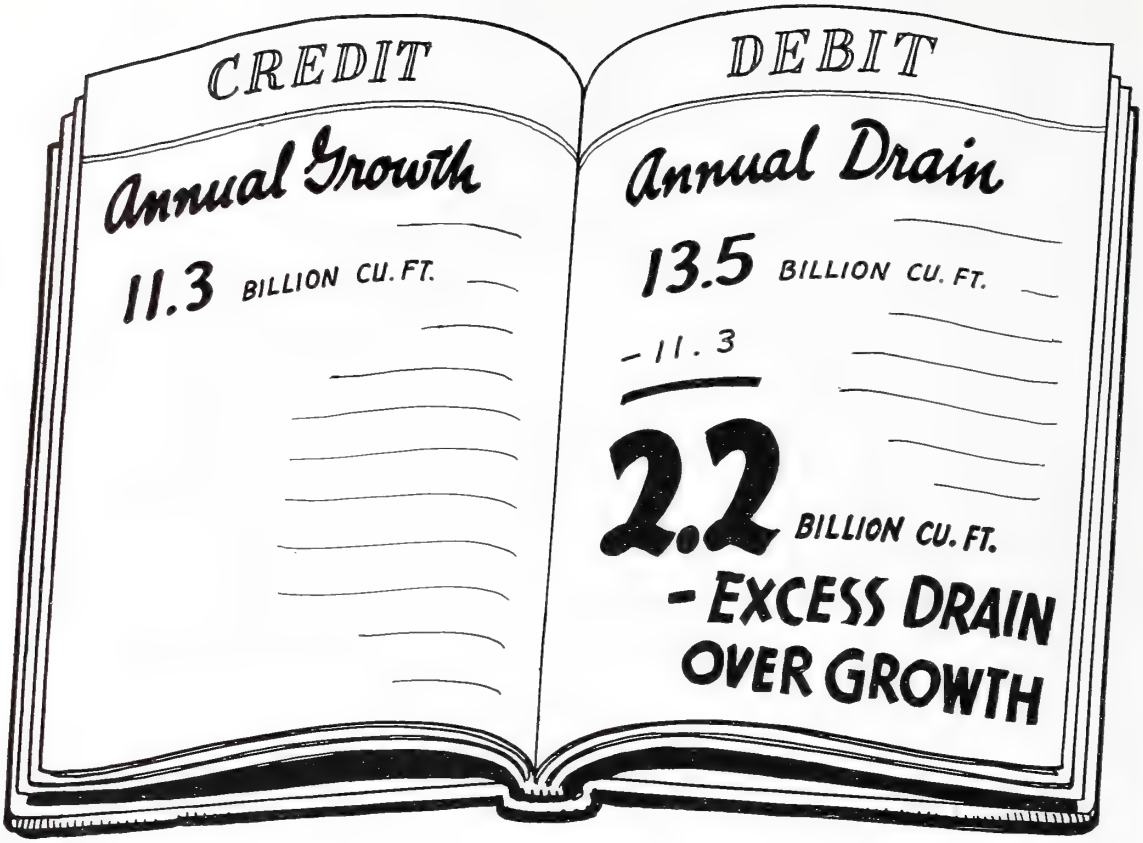
THREE-FOURTHS of our commercial forest land is privately owned. It produces 95 percent of our timber cut, and constitutes eight-tenths of our timber-growing capacity. Far too little of this is under any form of management.



As a result of destructive cutting and fire, between 75 and 80 million acres of timber-growing land are idle.



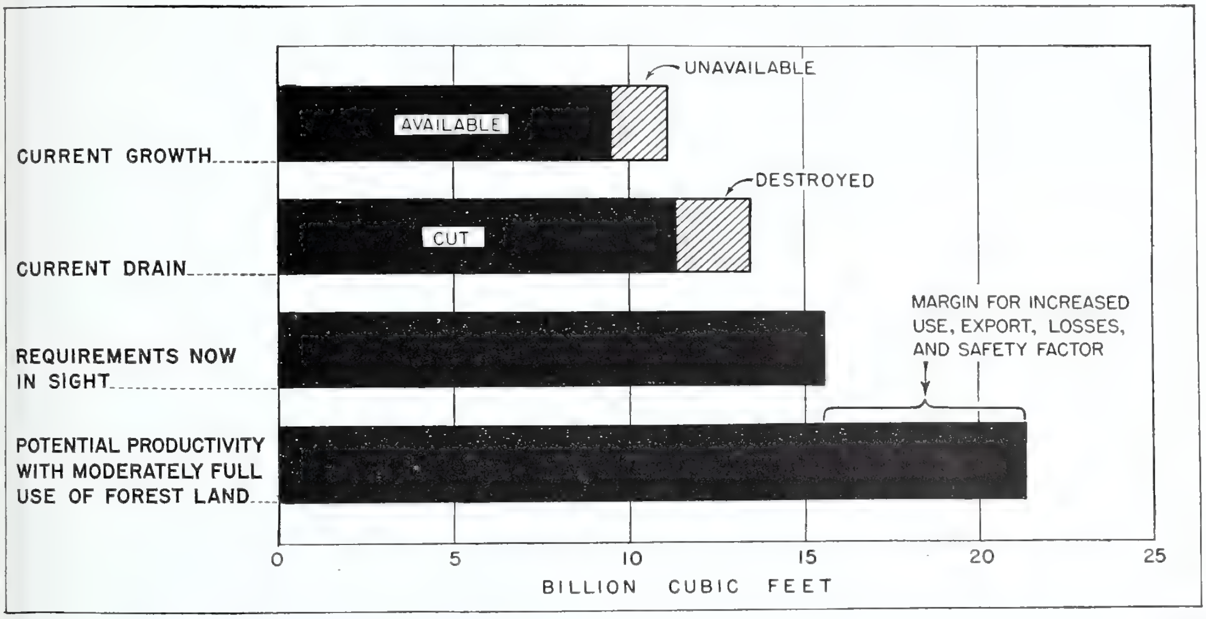
We HAVE left less than one-fourth of the original stand of virgin timber of the kind that was here when the country was settled. But it constitutes three-fourths of our saw timber. When it is cut, we must rely entirely upon second-growth forests, which have been so neglected and mismanaged that despite their large area they contain only a small portion (less than 25 percent) of our available saw timber.



F-396953

VIRGIN FORESTS are steadily being reduced, and second-growth forests are being cut and burned about as fast as they grow.

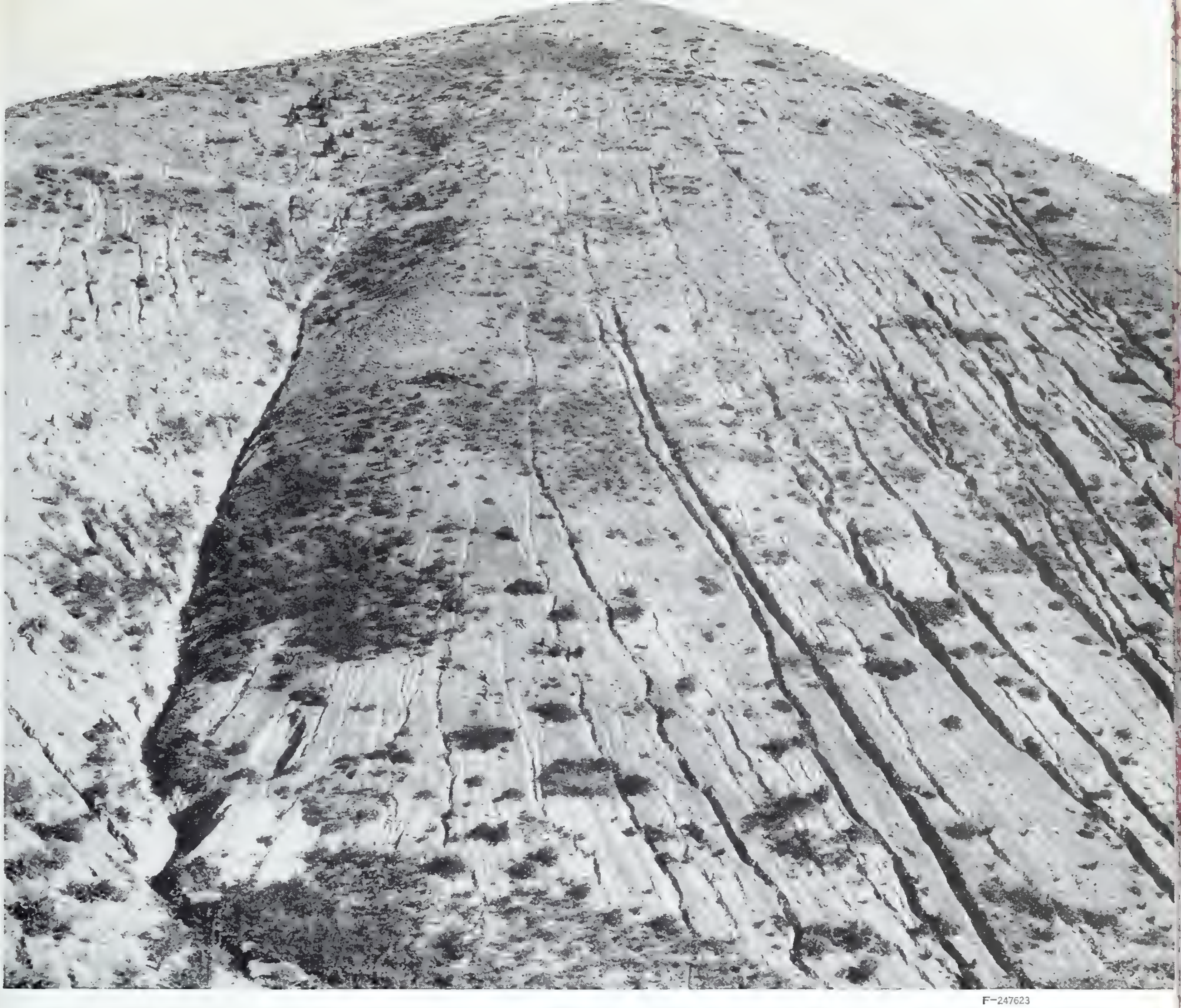
# FOREST GROWTH, DRAIN, AND REQUIREMENTS



To MEET the real requirements of our people for forest products, with a margin for export and safety, growth should be nearly doubled.

F–219325

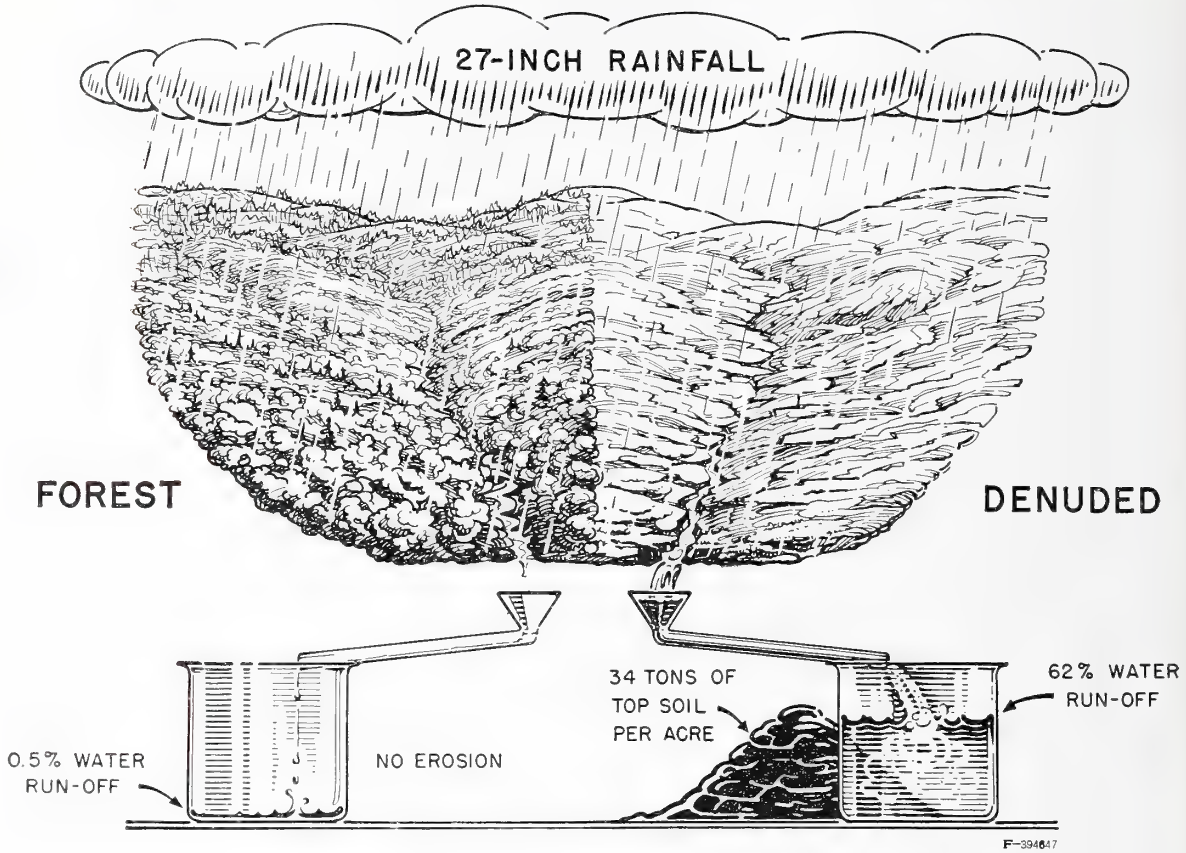
Forested watersheds deliver clear, pure water to cities and towns and to irrigation projects and power plants. Forests regulate stream flow, minimize floods, and hold soil in place.



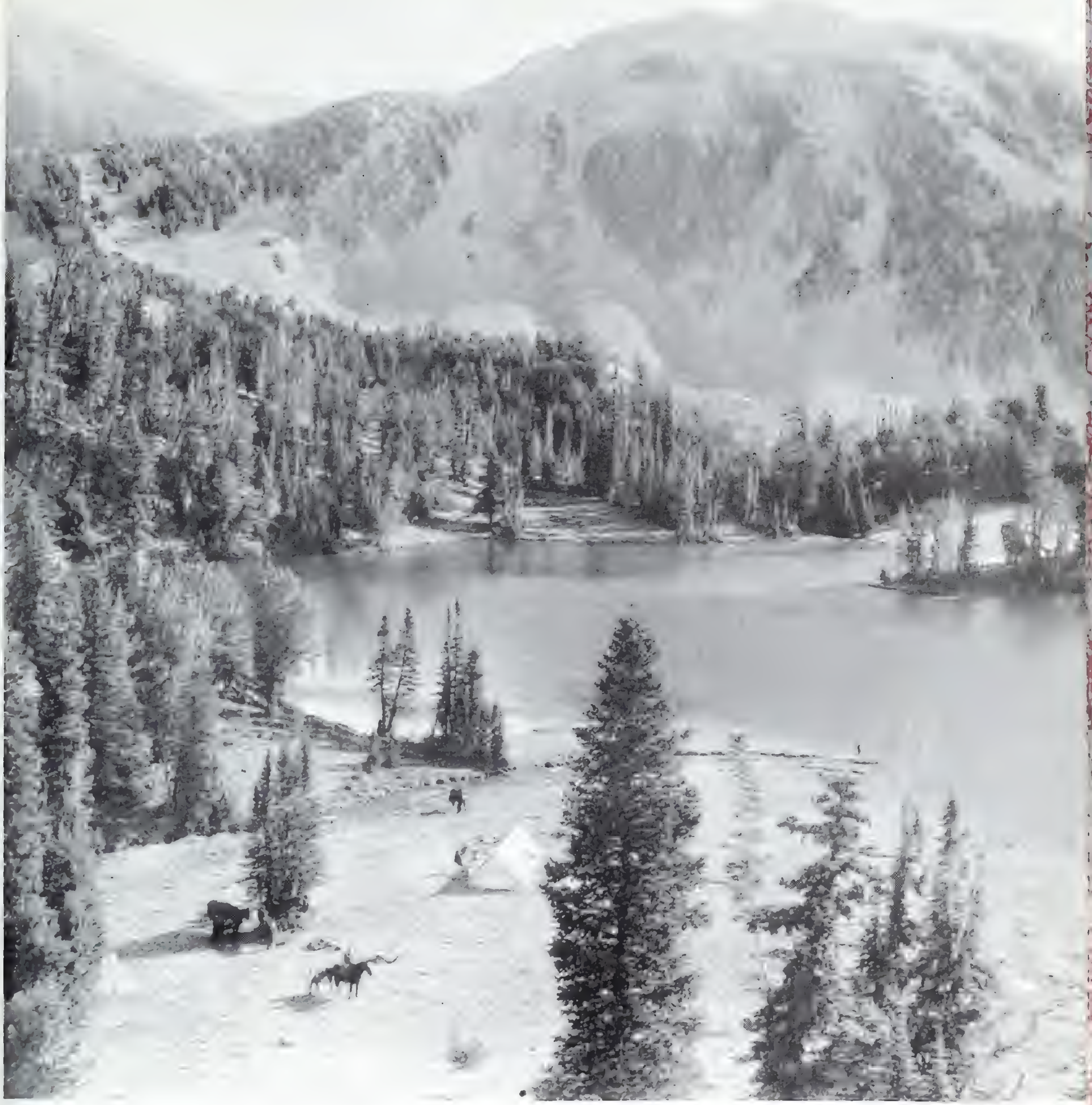
F–247623

*This hillside was once heavily timbered.*

But when rain falls on denuded slopes, there is no vegetation to intercept it, no litter on the ground to retard the run-off. Instead of seeping into the soil, water rushes downhill, digs gullies, and takes away the best soil. Rivers run red with mud, overflow their banks, and cause disastrous floods.



COMPARE the erosion and run-off from these two watersheds, one forested, one denuded. Data from actual measurements, Yazoo River flood, 1931.



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EACH YEAR forests afford recreation for millions of people.

F–366217

BUT THE possibilities of providing families with low-cost vacations have been barely scratched.

F-378057

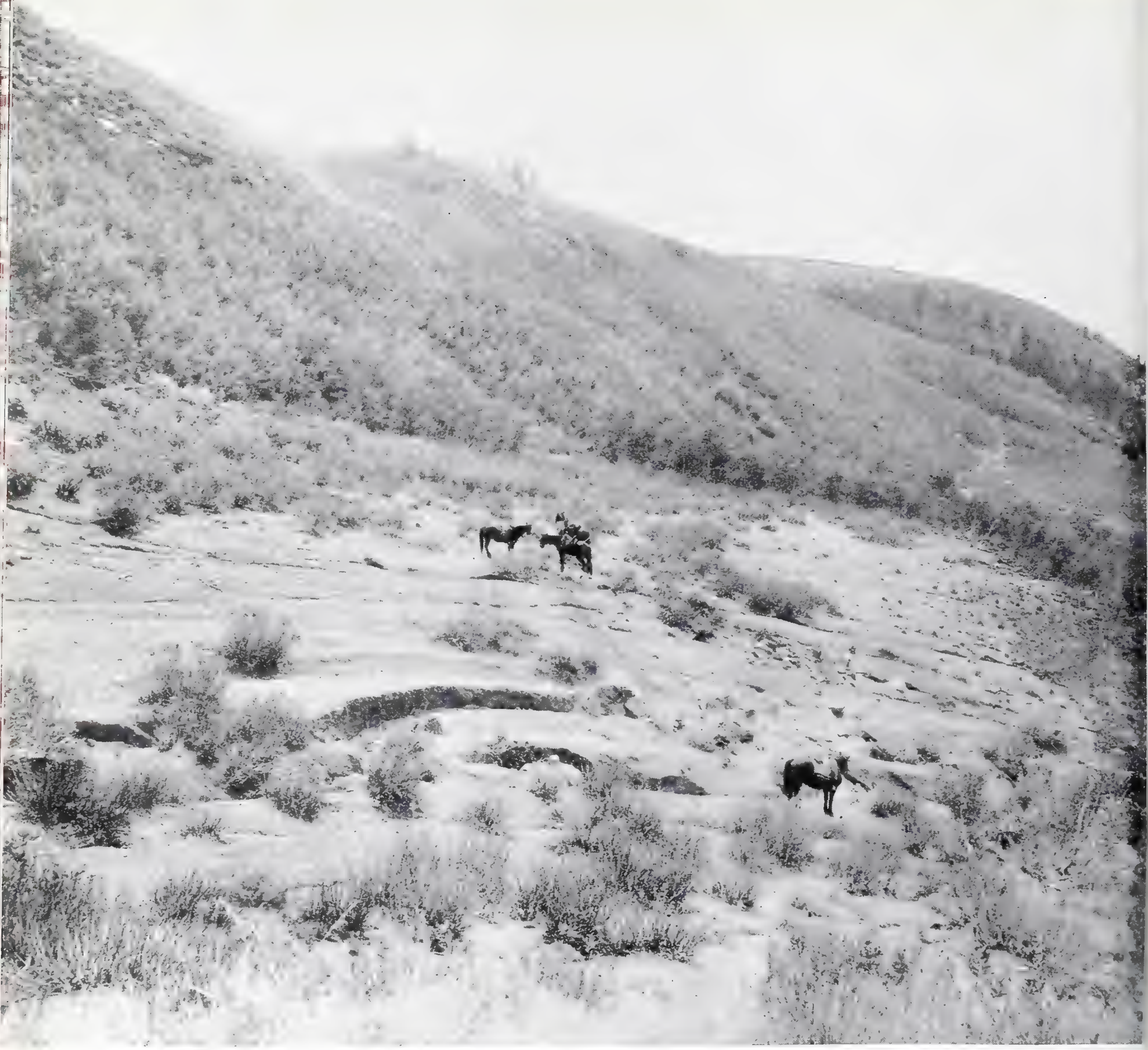
WHEN protected and managed for game as well as for timber and other values, forests provide food and sanctuary for great numbers of deer and other wild animals.

F-331169

WILDLIFE is an important forest resource, but it can't survive fire and the destruction of its habitat.

F–189073

Forest ranges, valuable for the grazing of domestic livestock, cover more than one-half of the forest area. They make a substantial contribution to our national meat, wool, and leather supply.



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UNFORTUNATELY, because of overstocking and serious droughts, much of the range is depleted. Depletion means reduced grazing capacity, fewer livestock, less income, and soil erosion.

F-385134

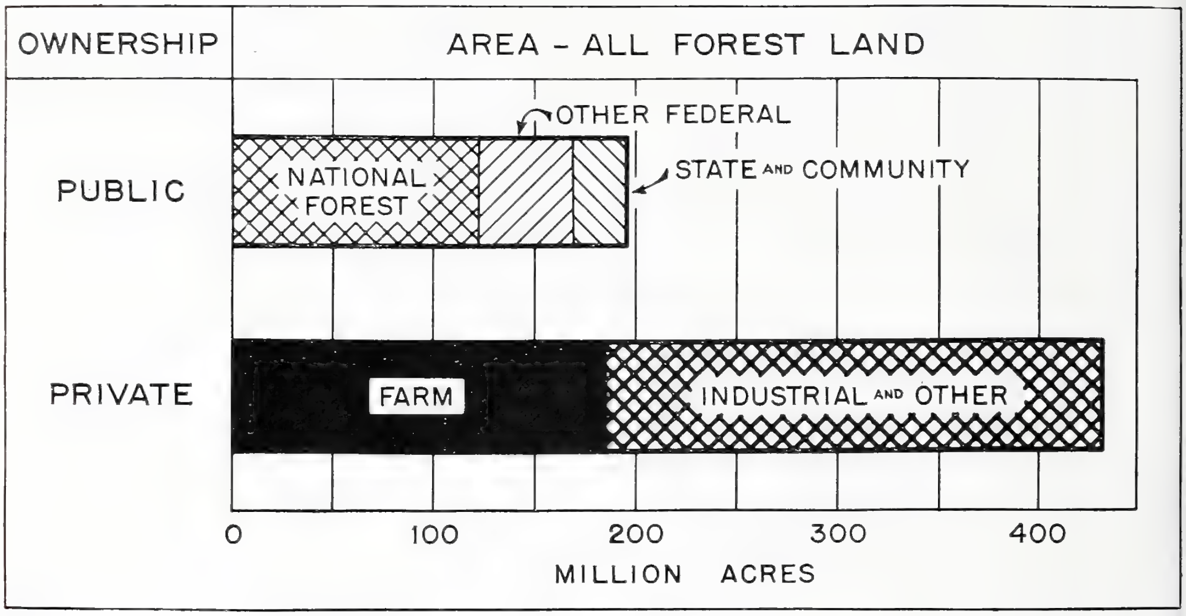
*A mountain meadow, depleted by overgrazing, is restored to productivity by artificial reseeding and stock control.*

Forage, like other agricultural products, is a crop and responds to management. The productivity of western forest range land could be increased one-half.

Miscellaneous forest products—too numerous to mention—represent a value of about $100,000,000 a year. They all supply needs, furnish labor, and add here and there a few sorely needed dollars to income. Most of these forest industries could be further developed: *A*. Naval stores; *B*. maple sugar; *C*. Christmas trees.

F–226631, AND F–368120

## OWNERSHIP OF FOREST LAND

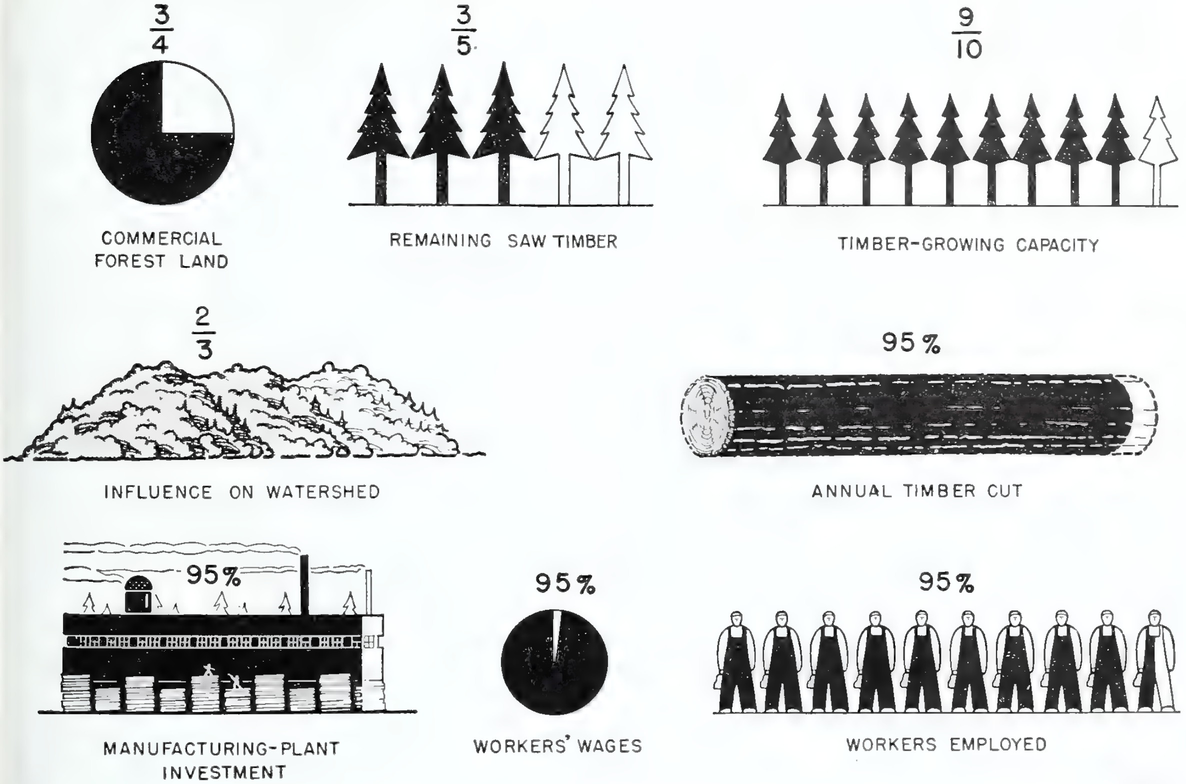


F-390802

WHAT NEEDS TO BE DONE TO MAKE THE MOST OF THE FOREST RESOURCE? How can we build a new frontier? There are 630 million acres of forest land involved, one-third in public ownership, two-thirds in the hands of private owners.

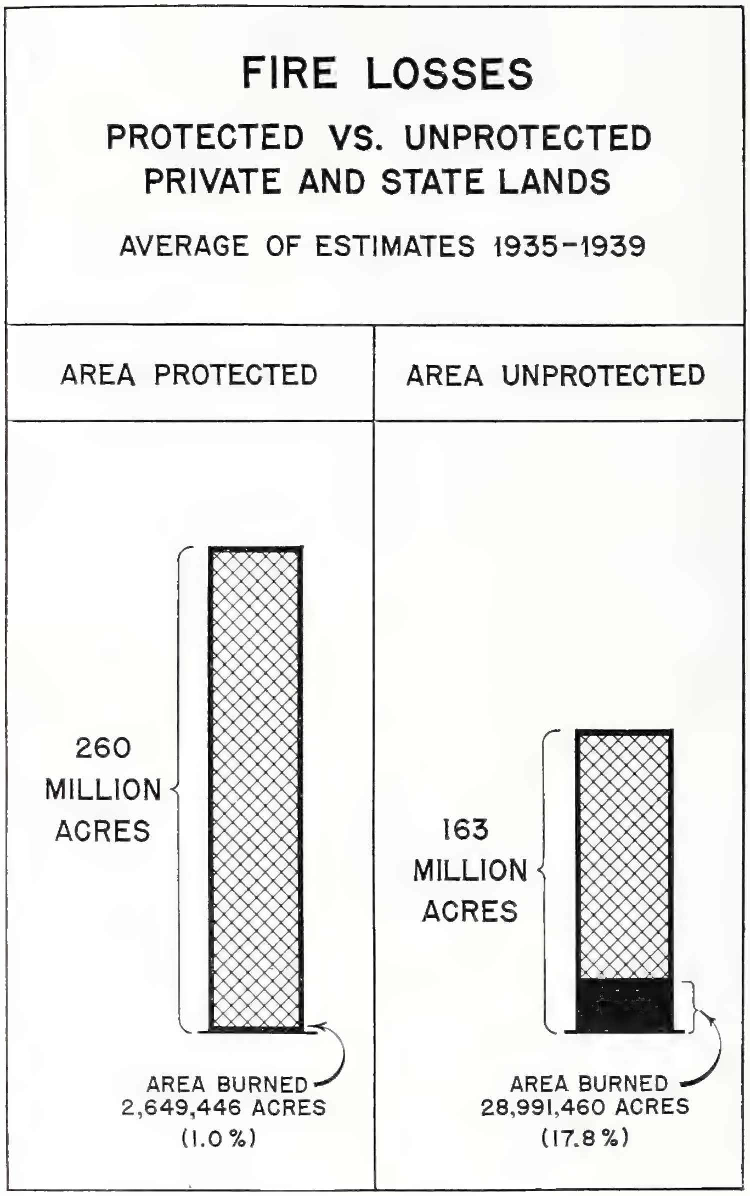
## THE EXTENT TO WHICH PRIVATE FOREST LANDS DOMINATE THE NATIONAL PICTURE

(SHOWN BY BLACK OR SHADED PORTION OF DIAGRAM)



F-390803

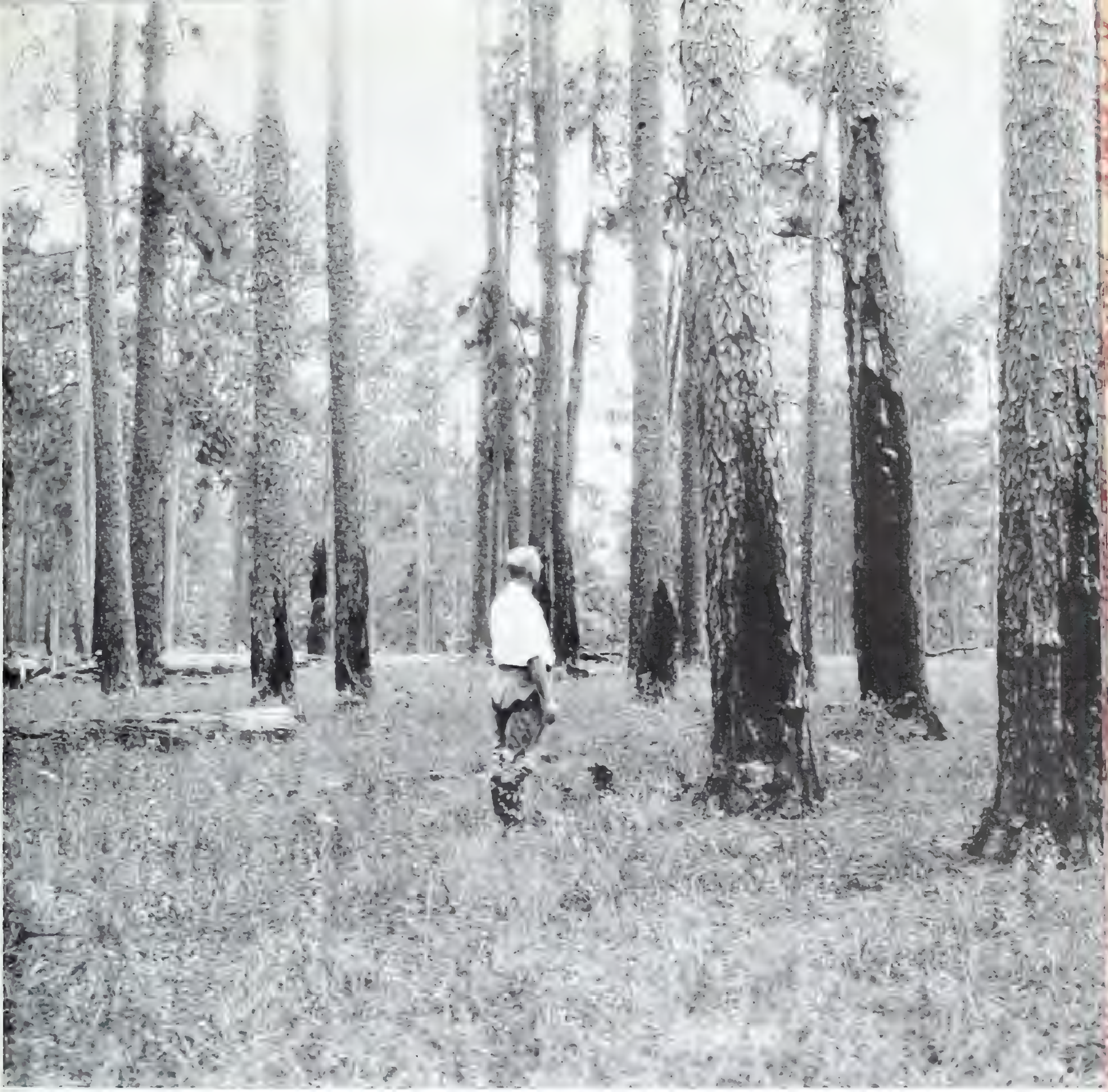
So, CLEARLY, the effort to rebuild, to capitalize on forest conservation as one means to rural and national rehabilitation, must be directed on both private and public lands. It must be of such magnitude as to make past efforts look small indeed by comparison. The following are some of the private-land problems that must be solved:



F-396954

## Private-Land Problems

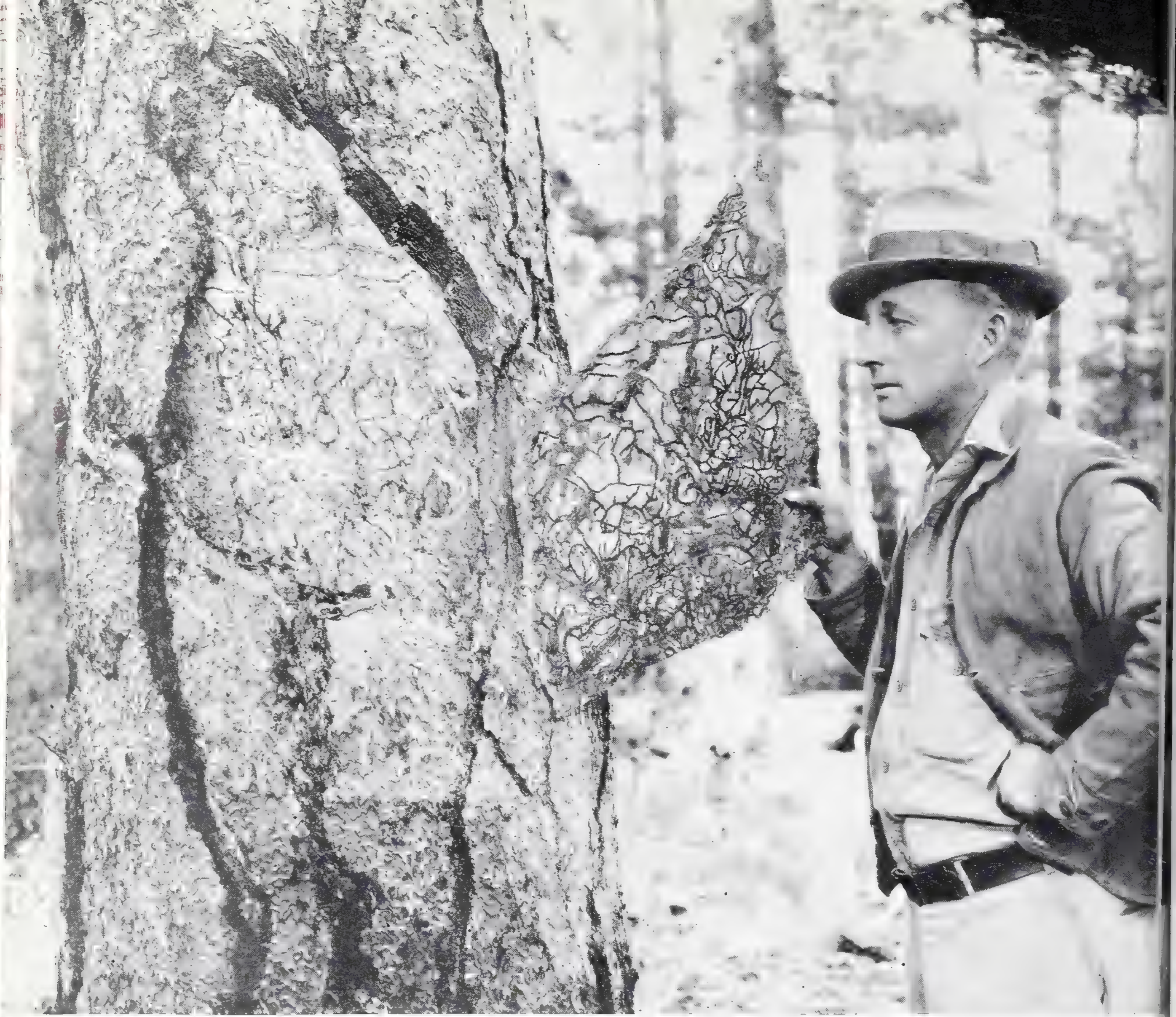
THE SCOURGE of fire must be wiped out. During 1935–39, cooperative Federal, State, and private fire control was effective on 260 million acres of State and private land. The area burned was held to 1 percent.



F-250494

*The best quality lumber is in the bottom logs. This most valuable portion in all of the trees shown has been degraded by repeated ground fires. Reproduction is entirely lacking for the same reason.*

One hundred and sixty-three million acres of private forest land were without protection, and fires burned over 17.8 percent of this area.



F-285-92

THE RAVAGES of tree-killing insects must be controlled. Western pine beetles in Oregon and Washington killed nearly as much ponderosa pine as was cut from 1931–35. This was 15 times the amount destroyed by fire.

*Mature white pine in Idaho.*

F-228517

FUTURE stands of timber like this are threatened because the white pine blister rust attacks and kills the young trees. Already enormous values have been destroyed. New areas are threatened, and no adequate control organization exists. Control in threatened areas is established through eradication of currant and gooseberry plants, upon which the rust must spend a part of its life cycle in order to develop.

F-379983

MILLIONS of acres of privately owned forest land are denuded or so poorly stocked that they can be classed only as idle. With protection some will reproduce naturally, but about 25 million acres require planting. It is a 100-year job at the current rate of planting.

F-366558

*This 2-year-old shelterbelt is already exerting a protective influence on cropland.*

IN ADDITION, the cooperative planting of field windbreaks (shelterbelts) on farms in the Prairie States proceeds at but a fraction of the pace dictated by the need and justified by the results. Shelterbelts retard wind velocity, prevent wind erosion, conserve soil moisture, increase crop yields, and enrich the lives of families.

F-390254

*Timber owners studying the results of forest experiments—South Carolina.*

NOTWITHSTANDING notable exceptions, forest landowners have been slow to adopt good forest practices. Lack of knowledge of how to do a better job and make it pay is the reason in many cases. The gap between research and the application of results of research by four and one-half million farm and industrial owners is much too wide to bridge with current extension facilities.

*Demonstrating all-wood prefabrication of low-cost homes.*

F-26002M

Ready markets for timber products are essential if we are to grow more timber and thereby stabilize and increase employment opportunities. Forest owners, particularly the smaller ones, must keep abreast of new and improved markets for wood. Consumers must learn its many new uses and how to get the best possible service from wood. Utilization extension would do these things, but it is one of the most neglected public efforts in forestry.

F-351651

ONE-THIRD of our commercial forest land is an integral part of farms. Too often farm woodlands are mismanaged and subject to heavy cutting by farmers sorely in need of supplemental income. Benefit payments to farmers for improved forest practices are a part of the agricultural conservation program of the Federal Government but have not yet assumed large importance.

*Example of facilities required for lumber production—beyond the means of small forest owners except through cooperative organization.*

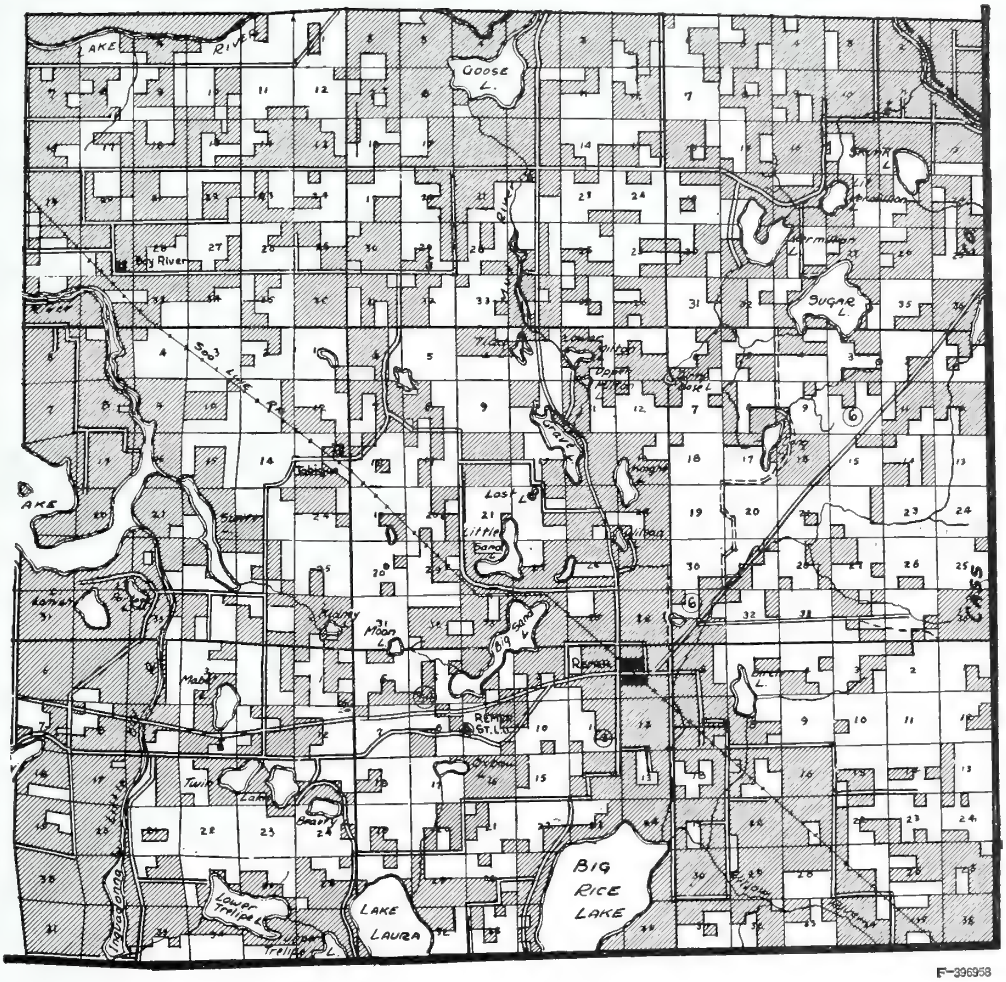
Wood marketing, manufacturing, and management problems are difficult for farm and other small owners. Pooling of resources through cooperative organization gives each individual a better chance to realize on his timber and to manage it for continuous production. Federal and State assistance has fostered the development of several small owner cooperatives, but the field has scarcely been scratched.

FSA-P2125

Suitable public credit facilities for industrial and nonfarm forest owners are not now available. The terms of private lenders usually require rapid cutting and early retirement of loans, so that long-range management plans, consolidation of ownerships, and other adjustments necessary to practice good forestry are often out of question even for well-intentioned operators.

# FOREST-OWNERSHIP PATTERN
## PART OF CHIPPEWA NATIONAL FOREST
### MINNESOTA

▭ NATIONAL-FOREST LAND ▨ PRIVATE-FOREST LAND



F-396958

Judged by the need, public acquisition of forest lands has proceeded at a snail's pace. The national-forest area shown is typical of complex ownership patterns which in numerous instances handicap adequate protection and management.

F-264832

MILLIONS of acres of farm and nonfarm forest lands are partly or nonproductive. Little or nothing is being done to restore productivity. Vast numbers of people are on relief in denuded rural areas. Here's a great need and opportunity to put idle men and idle land to work again.

# PRIVATE FOREST-LAND PROBLEMS

UNSTABLE ownership of large areas of forest land, which precludes adequate protection and management.

Multiplicity of intermingled ownerships, which compound the inherent difficulties of forest-land management.

Overlapping, often ill-defined, and sometimes conflicting Federal, State, and local interests, responsibility, and authority.

Wide variation in objectives between classes of ownership and within the same ownership classes.

Inadequate technical knowledge of how to handle forest lands.

Difficulty, with present extension facilities, of making existing knowledge available to the extremely large number of scattered forest owners.

Special handicaps of small unorganized owners, who in the aggregate control 139 million acres of commercial forest land: Manufacturing and marketing facilities; management problems, etc.

The problem of completing the change which has already begun, of the philosophy of forest owners from that of liquidation to that of forest management.

Inequitable tax practices.

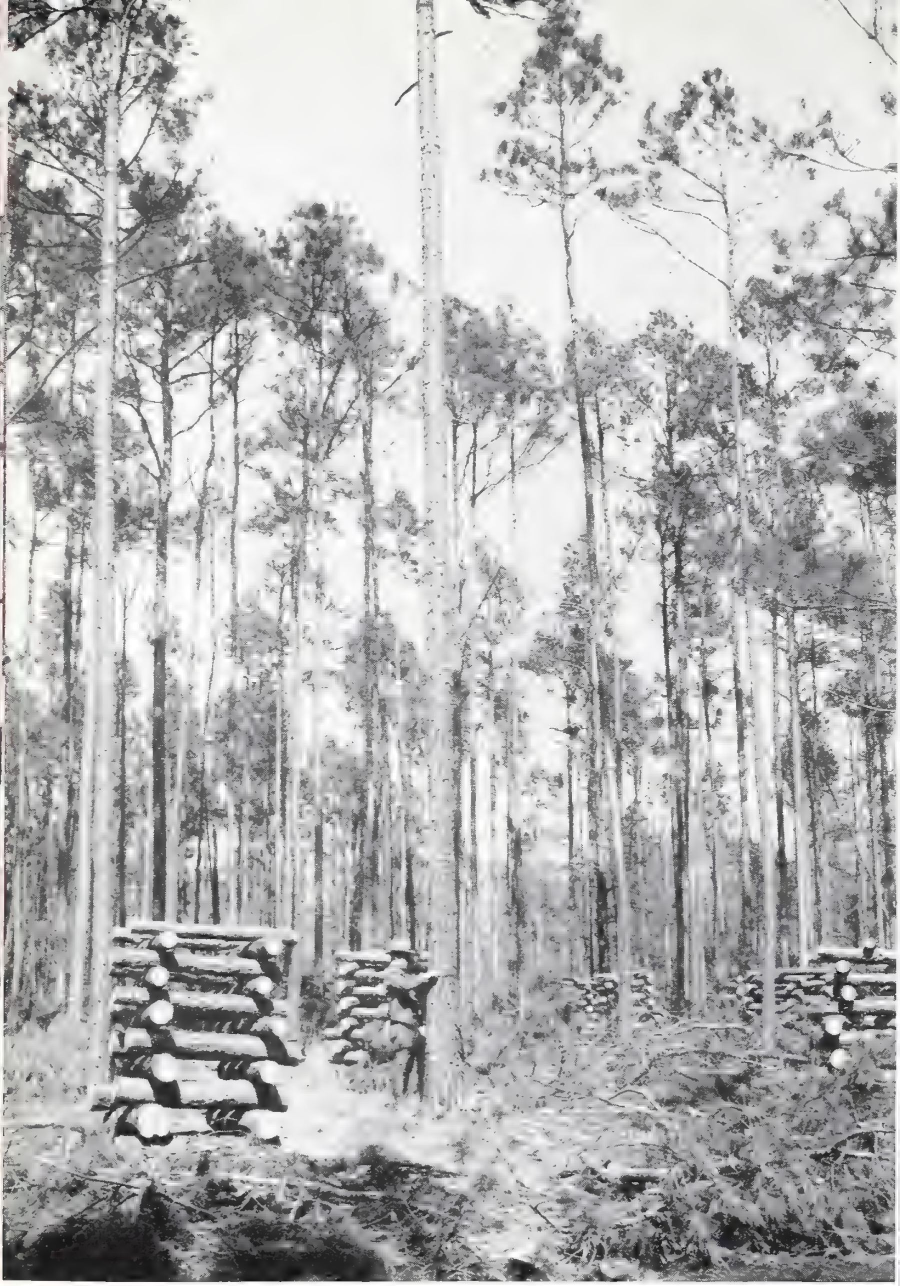
Hazards of fire, insects, and disease.

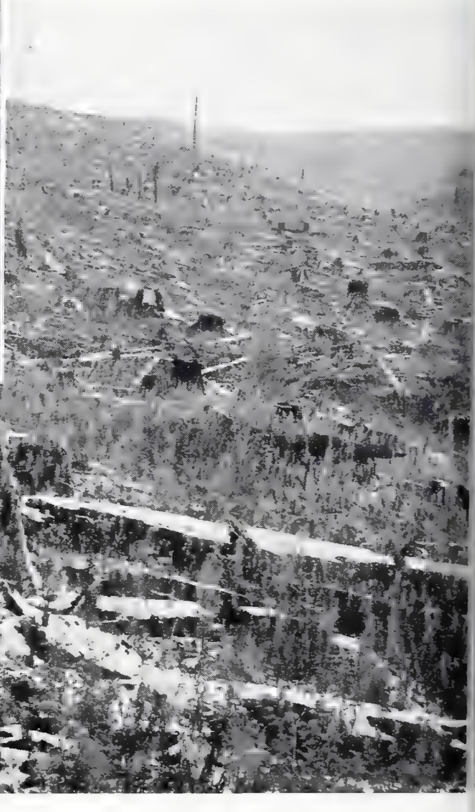
Underdevelopment of new uses and markets for wood.

The lack of suitable forest credit facilities for industrial and nonfarm forest owners.

Twenty-five million acres of idle forest land in need of planting. Millions more in semiproductive condition in need of rehabilitation.

THESE are some of the private forest-land problems. Their solution is a matter not for the private owner alone, nor for the public alone just because it has an interest in private forest lands. Action by both is required and is equitable.

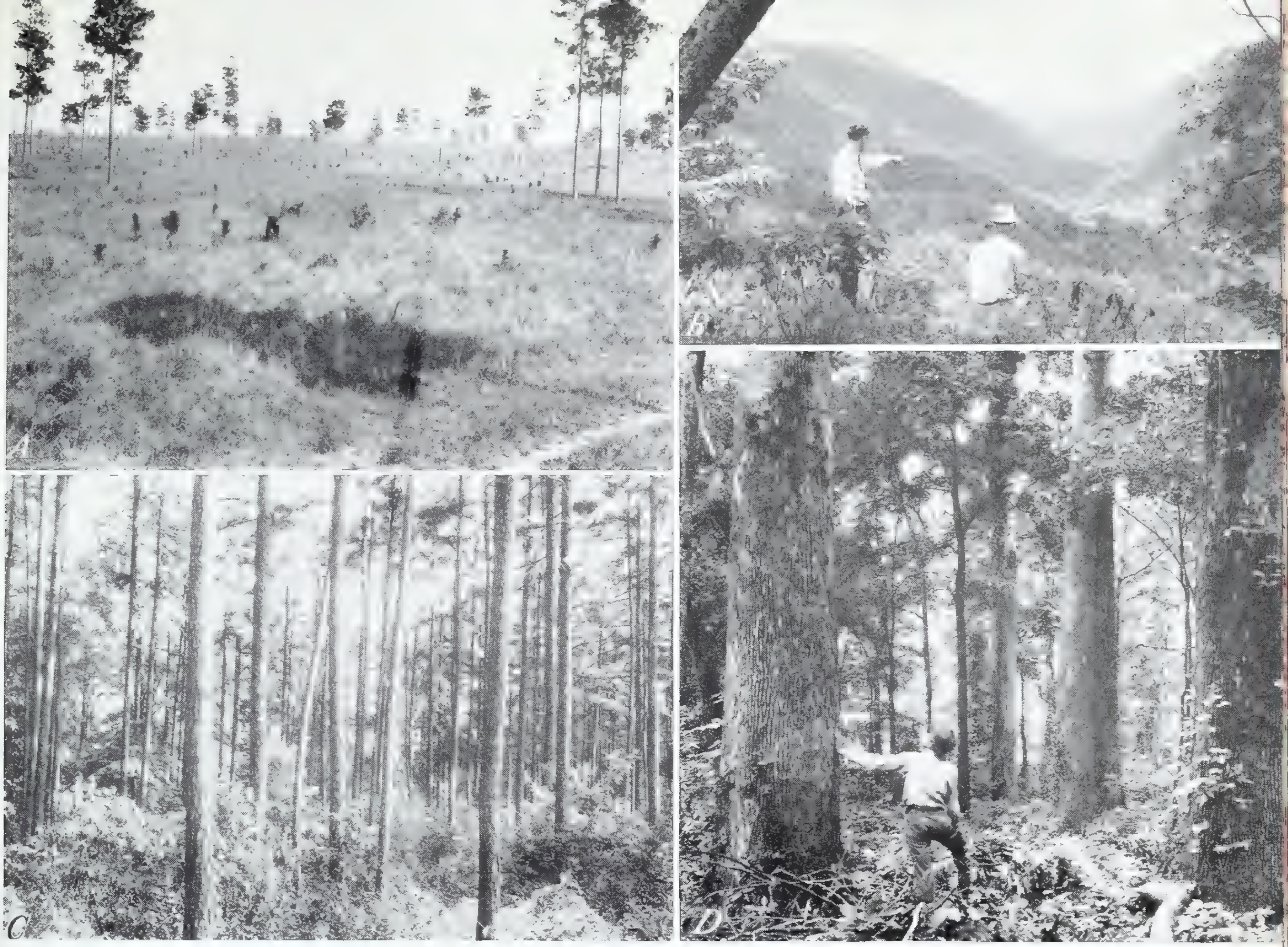




*Examples of good and bad forest practices—both on private lands.*

F-363611 AND F-320978

PUBLIC cooperation will help solve the forest problems. But reasonable public controls are also needed to insure cooperation by private owners, to safeguard public expenditures, and to stop destructive practices on the part of some owners and operators.



F-296787, F-381134, F-250493, AND F-386657

EVEN with adequate cooperation and reasonable regulation there would still be forest lands submarginal for private ownership and management, but none the less important for stream-flow stabilization and soil erosion control, that would not be reached.

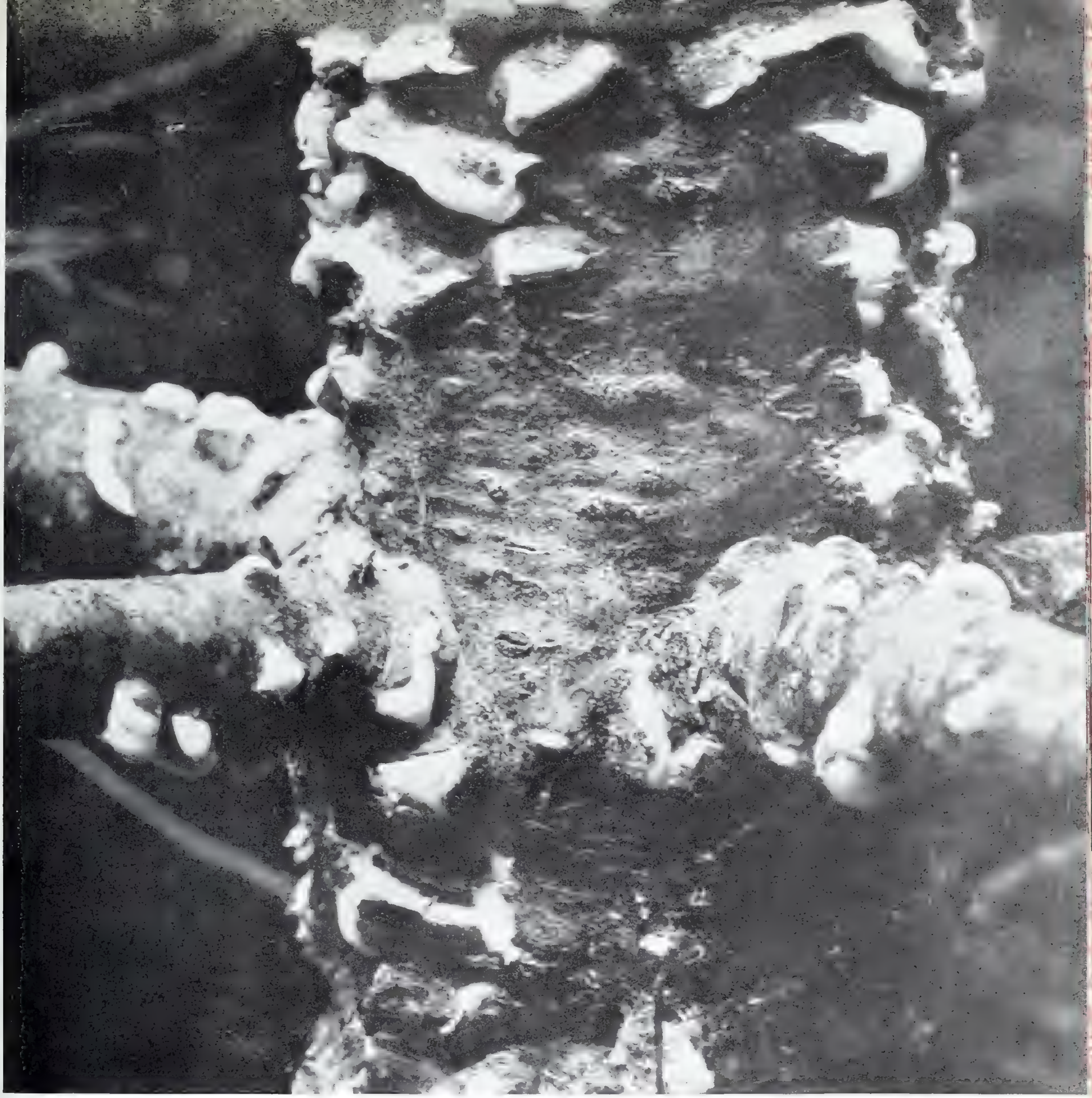
There would be others scrambled in a hopeless ownership pattern that precludes adequate protection and management, and still other areas of old-growth timber, threatened by liquidation, which hold key positions and govern the type of management feasible on adjacent areas.

For these lands, public ownership—community, State, or Federal—appears to be the only answer: *A,* Heavily cut forest; *B,* watershed-protection forest; *C,* immature shortleaf pine typical of some tracts acquired by the Federal Government to consolidate holdings; *D,* old-growth bottom land hardwoods purchased to forestall liquidation cutting.

F-386384

## National-Forest Problems

So MUCH for the two-thirds of the Nation's forest land in private ownership. That other one-third—mainly the national forests—represents the first large-scale trial in the United States of public ownership and administration of a great natural resource. While it has been sufficiently successful to have received general public approbation, great unfulfilled opportunities for public service lie ahead.



E AND PQ-484

*Blister rust canker on young white pine.*

JUST as on private lands, we are in the national forests running a losing race against time to stop the spread of white pine blister rust in valuable white and sugar pine stands.

E AND PQ–8591

*Potential lumber turned to snags by the western pine beetle.*

WE ARE unprepared to combat the staggering losses caused by tree-killing insects.

F-387000

*A fire fighter practicing descent by parachute to control, before it spreads, a small fire in an inaccessible area.*

ORGANIZED fire control has made great advances since the establishment of the national forests in 1905. But since then climate has taken an unfavorable swing, and human use of forested areas has increased enormously. We still have an average of about 13,000 fires a year on the national forests.

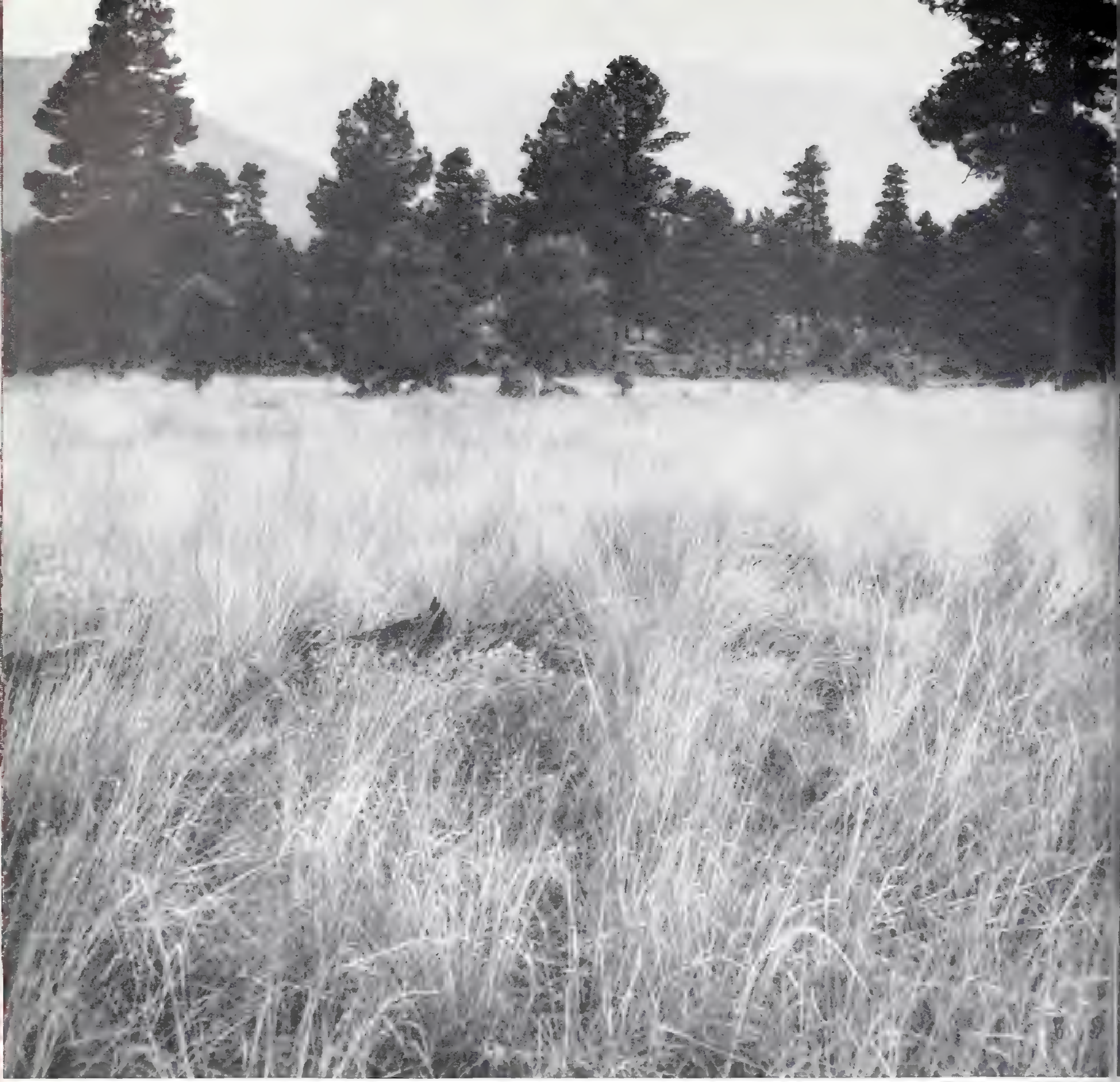
F-367152

*Marking selected tree for cutting on a sales area.*

THE PRESENT work load of essential jobs on the national forests is much too heavy for the available manpower, which means that work that ought to be done and services that ought to be performed must be neglected.

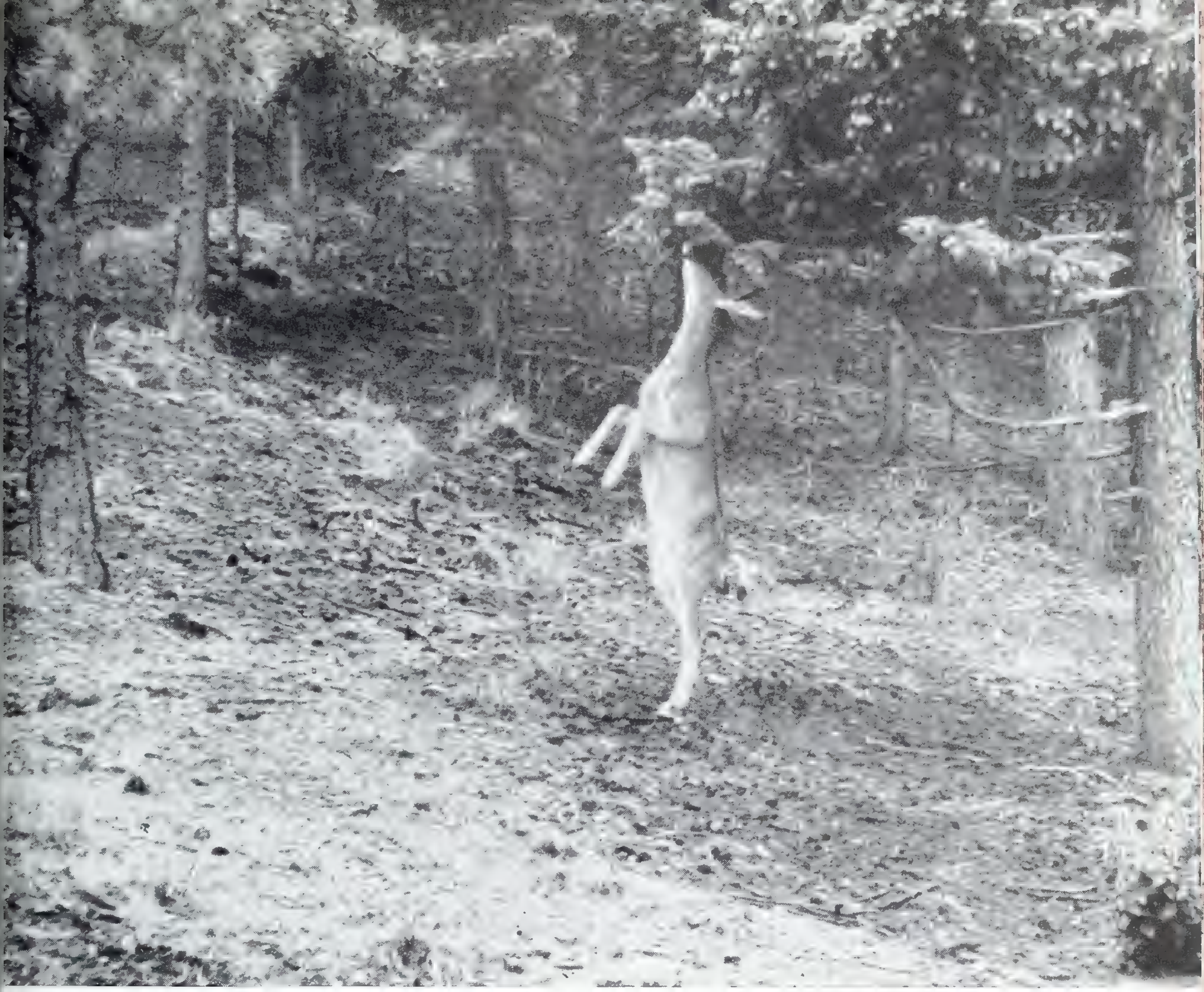
F-370908

PUBLIC campgrounds on the national forests help provide low-cost vacations for millions of people. Many more could be served, but many of the facilities are already overcrowded.



USDI-4830

MUCH needs to be done to restore sore spots on forest ranges to full productivity. This area was once badly denuded by overgrazing.



F 395546

WILDLIFE management has lagged and, especially in the West, excess numbers of big game have created serious local problems. A shortage of food will cause a deer to browse as high on the trees as it can reach, standing on its hind legs. Under such circumstances survival of young trees is out of the question.

*Thinning an overcrowded stand of young trees—Hiawatha National Forest, Mich.*

Much too small an area is under intensive timber management. Timber management has been largely confined to protection, planting, and silvicultural practices on sales areas. Wholesale efforts to make land fully productive have not as yet been attempted.

F-349925

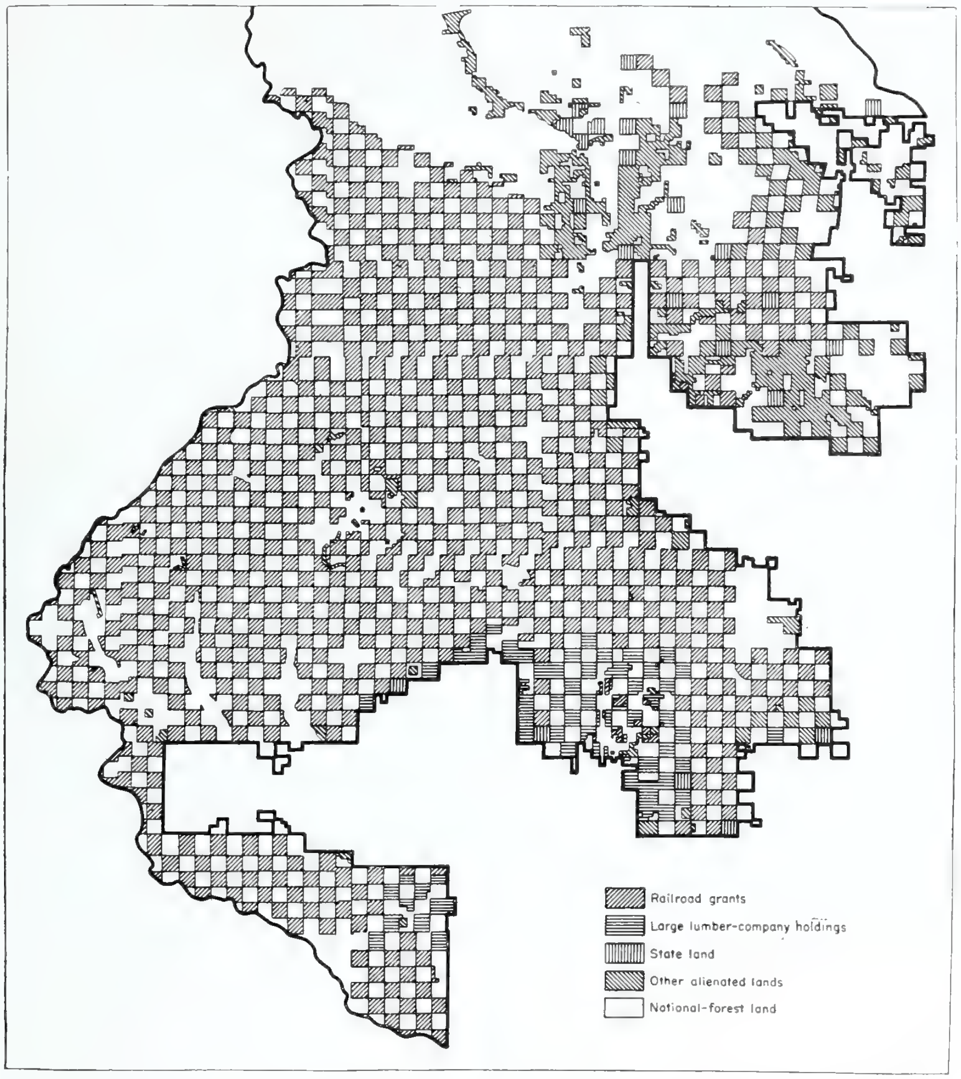
*Planting is necessary when seed trees are burned.*

AT THE present rate it will take about 30 years to complete the planting of national-forest lands now requiring artificial restoration, and more areas in this category are being added each year by fires and by land purchase and exchange.

E AND PQ–8593

*An isolated pocket of valuable timber killed by insects. Such values are a total loss unless the trees can be salvaged before deterioration sets in—usually a matter of only a few weeks.*

TIMBER values are lost following fire and insect and disease attacks, and opportunities for improving stand conditions are neglected because of inability of the Forest Service to undertake logging operations in areas not adapted or attractive to private enterprise.



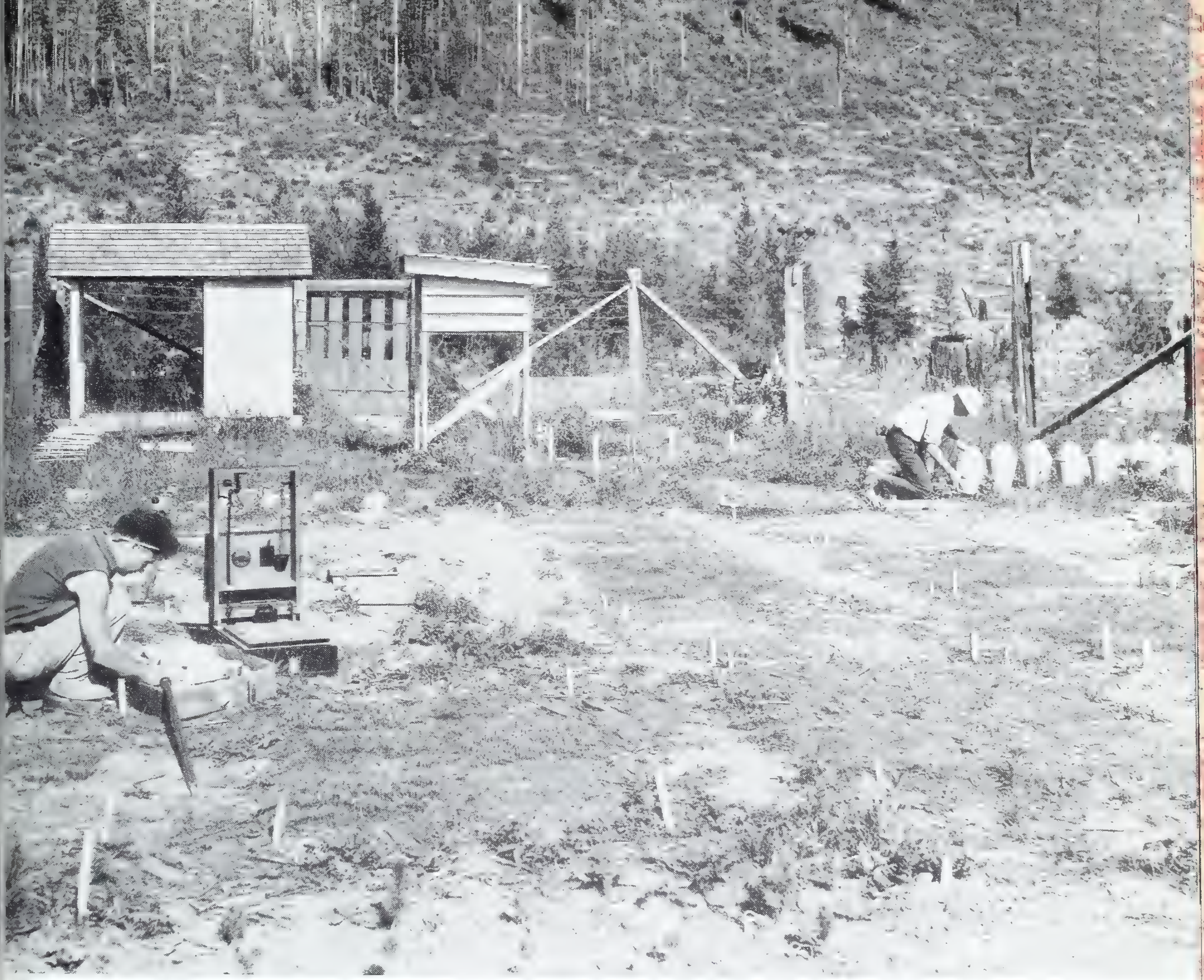
*An extreme case of intermingled public and private holdings—Wenatchee National Forest, Wash.*

IN MANY areas wholly or partly within the national forests, public and private lands are so divided and intermingled that neither owner can do a satisfactory job of management independently and thus insure permanent support for communities. In these situations it is desirable but not now legally possible to pool public and private resources under provisions which would protect both public and private interests.

F-270820

*Forest guard standing by for directions to fire.*

LOCAL short-term forest guards—the backbone of the fire-protection organization—a fine type of self-reliant skilled woodsman, are entitled to longer employment than the average 3 months now available to them. They are needed on the forests during the fire season, when the chances of getting an outside job are best, and must then be laid off when outside work is scarce. Meanwhile, forest-improvement work, for which these men are well suited, remains undone.



*Studying the survival of seedlings on a cut-over area.*

F-270721

## Research

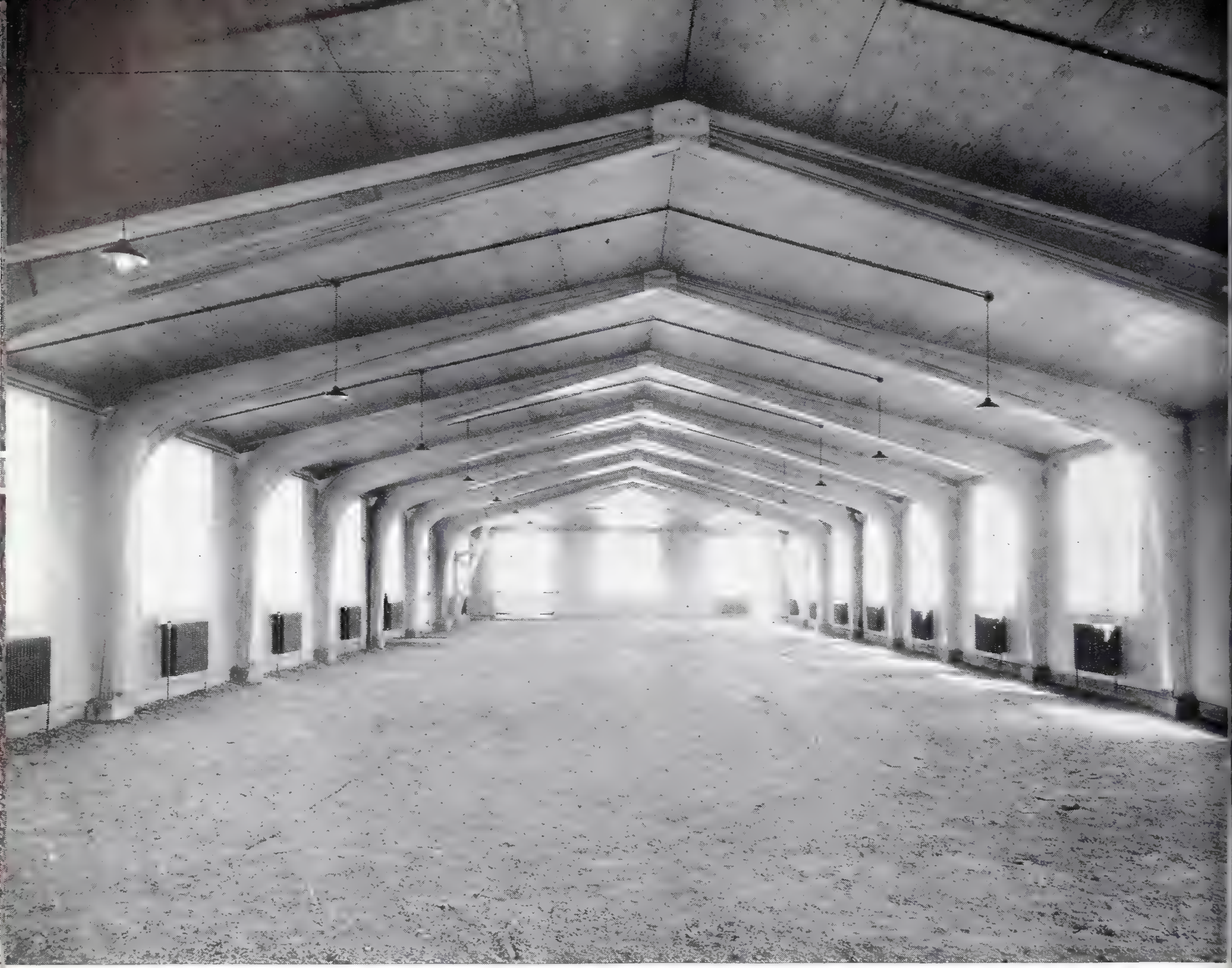
IF PRIVATE and public owners can have sound technical knowledge of how to handle forest resources, they can do a far better job. Only forest research can provide this information, for the United States, with all its wealth, no longer has either time or money to learn through large-scale trial and error.

F-352121

GROWING THE TIMBER CROP—a tremendous job lies ahead in developing procedure for the forest manager to follow.

F-353532

PROTECTION.—THANKS to research, current methods of controlling forest fires are far better than they were 30 years ago, but the job is still costly. In greater efficiency through more research lies one of the best chances for reduction of cost and better coverage with the funds available.



F–26224M

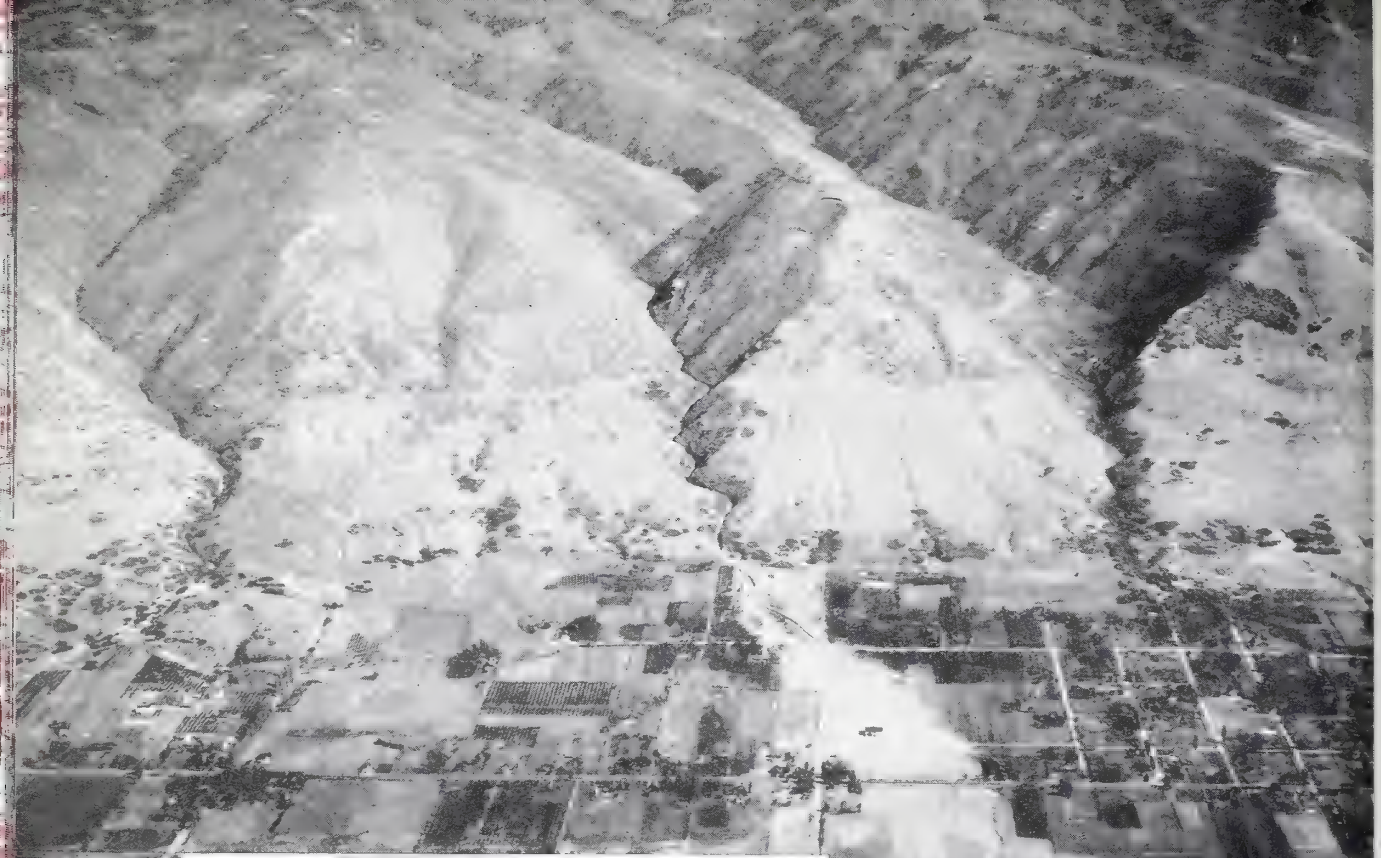
*Glued, laminated arches and plywood have been used instead of iron and steel in this workshop.*

WOOD CHEMISTRY AND ENGINEERING RESEARCH has developed many new substances and improved uses for wood which mean cheaper, better products for the consuming public. Such research will continue to have an ever-increasing part to play.

F—10099A

*Range examiner recording growth of seedlings on grazed range.*

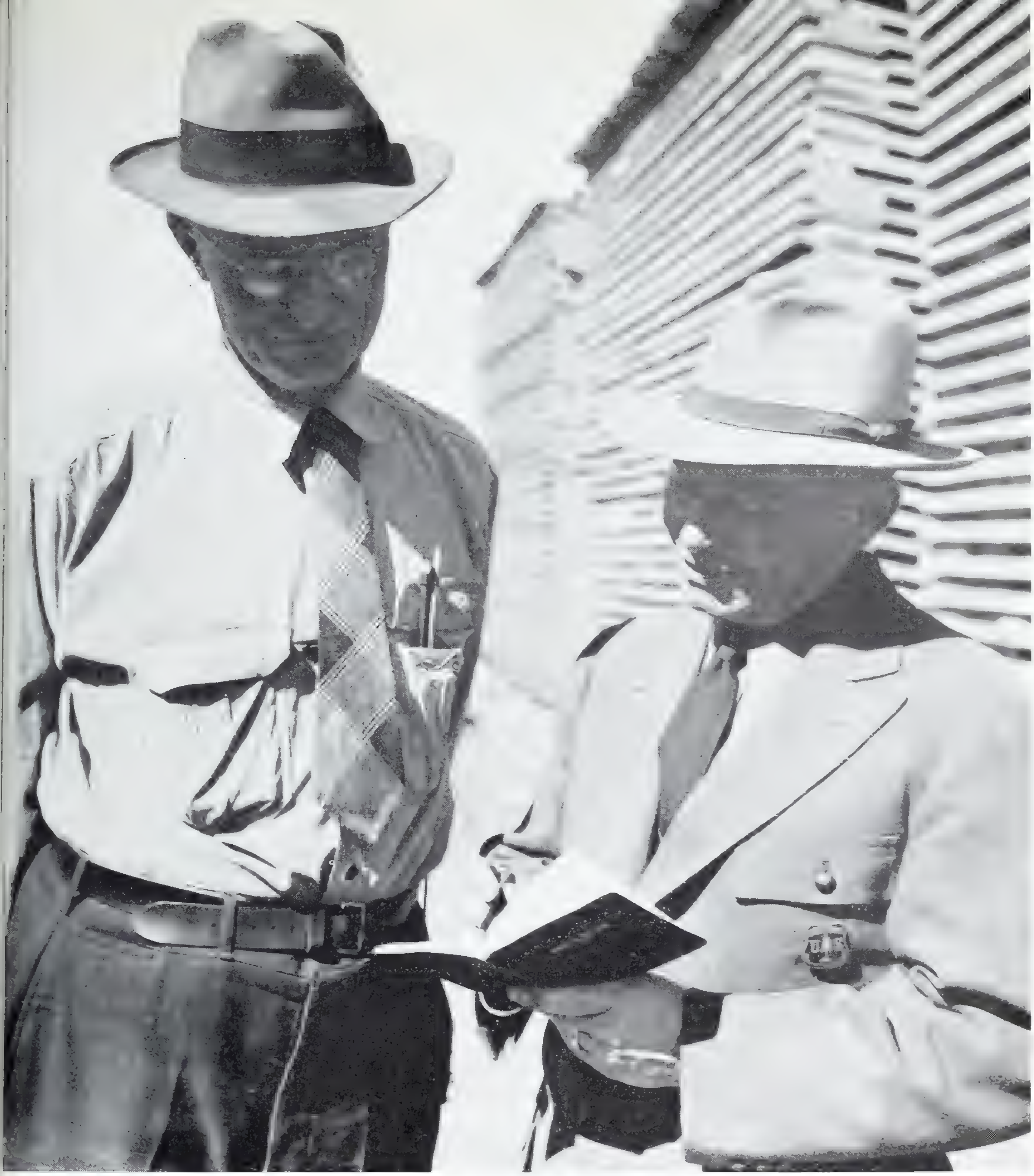
RANGE INVESTIGATIONS have for their objectives the perpetuation and improvement of the range, the revegetation of depleted areas, and the maximum forage and livestock production consistent with sound grazing practice and the preservation of timber and other values.



A. *Damage to farm land caused by debris washed down from a denuded watershed. This area has since been added to a national forest for protection and management.* F-264090

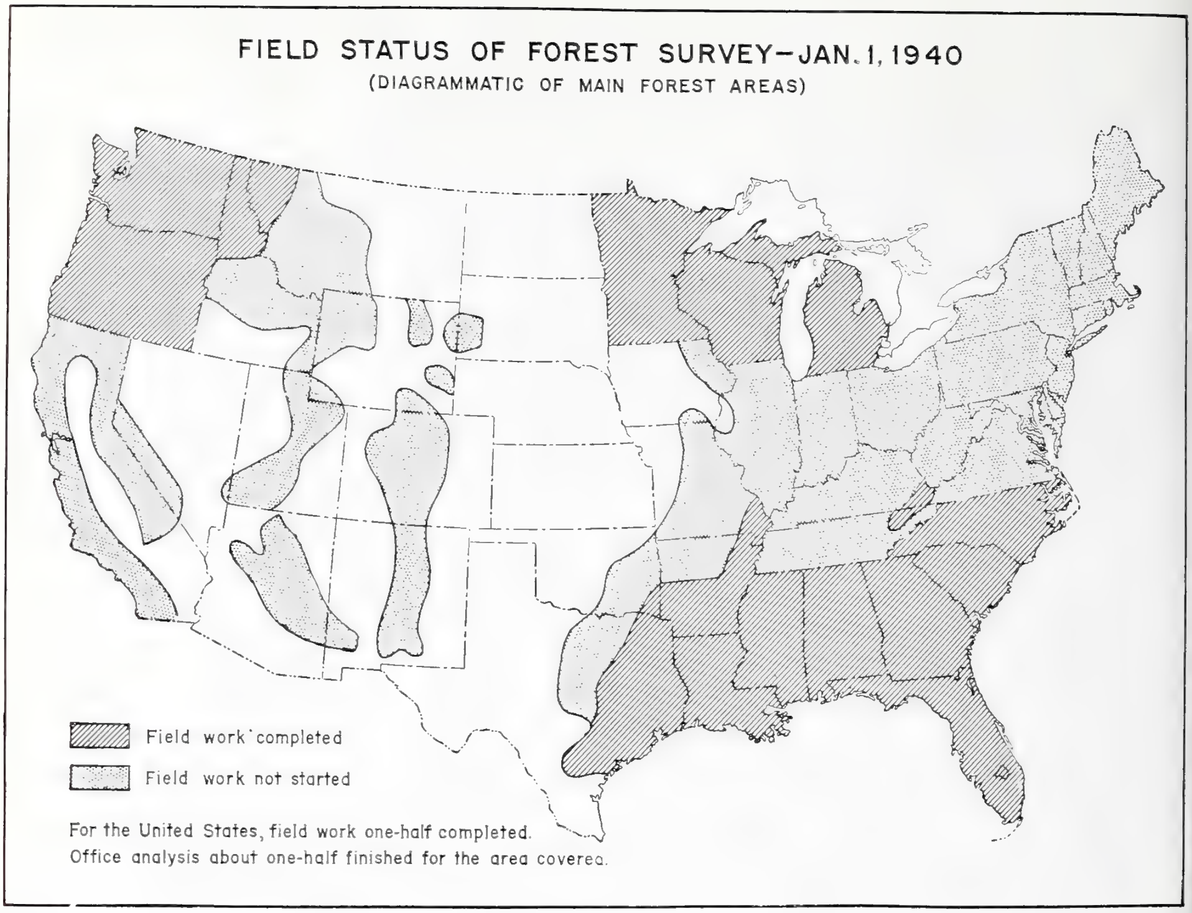
B. *The schoolhouse pictured here may be seen in the center of the wash above.* F-253124

FOREST—INFLUENCES RESEARCH.—Floods and the silting-up of streams and reservoirs are a growing menace. Other damage results from losses of fertile topsoil, pollution, and irregularity of stream flow for municipal purposes and for irrigation, power, and navigation. These all add up to a staggering bill, which the public must pay, in part because of ignorance of proper land use practices.



F–383734

ECONOMICS.—ONE thing which will encourage the practice of private forestry is to get the information which shows how to make forestry pay.



FIELD STATUS OF FOREST SURVEY—JAN. 1, 1940
(DIAGRAMMATIC OF MAIN FOREST AREAS)

For the United States, field work one-half completed.
Office analysis about one-half finished for the area covered.

F-395341

FOREST SURVEY.—A NECESSARY first step in a sound approach to the Nation's forest problems is an appraisal of the extent of our resources, the rate of depletion and growth, and the probable future wood requirements. No reliable information is as yet available on half the forest area of the United States.

FSA-60069D

THE AMERICAN people are heavily dependent on forests for myriad products and services, for employment and income, and for national defense. There is thus a public interest and responsibility in all forest land regardless of ownership. During our short national existence serious inroads have been made, but forests respond to management and can be renewed.

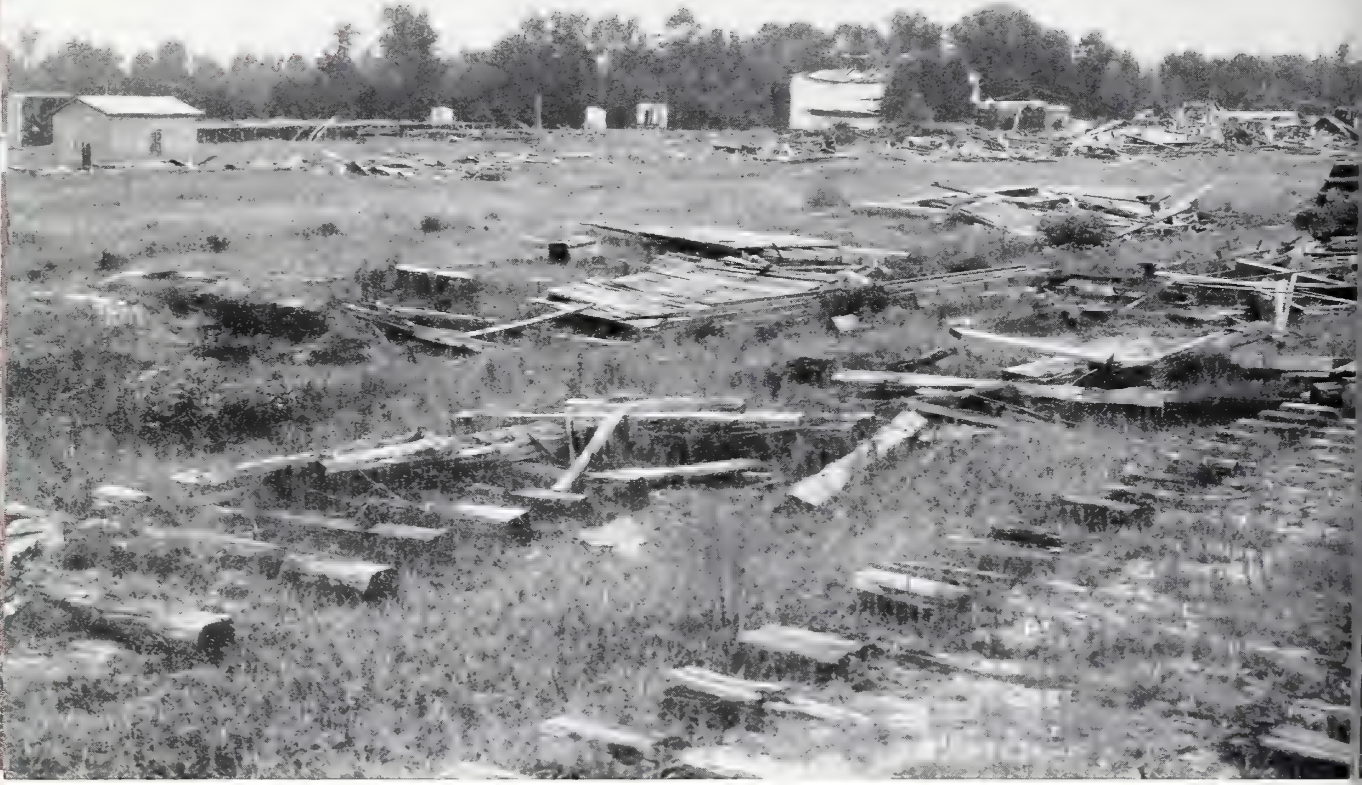
F-372296

OUR CHOICE is between continued depletion of the forest resource on one hand, and on the other, a national effort of reconstruction, a new frontier, new and permanent opportunities for employment and income, and an abundance of resources essential to the welfare and defense of our country.

F 396961

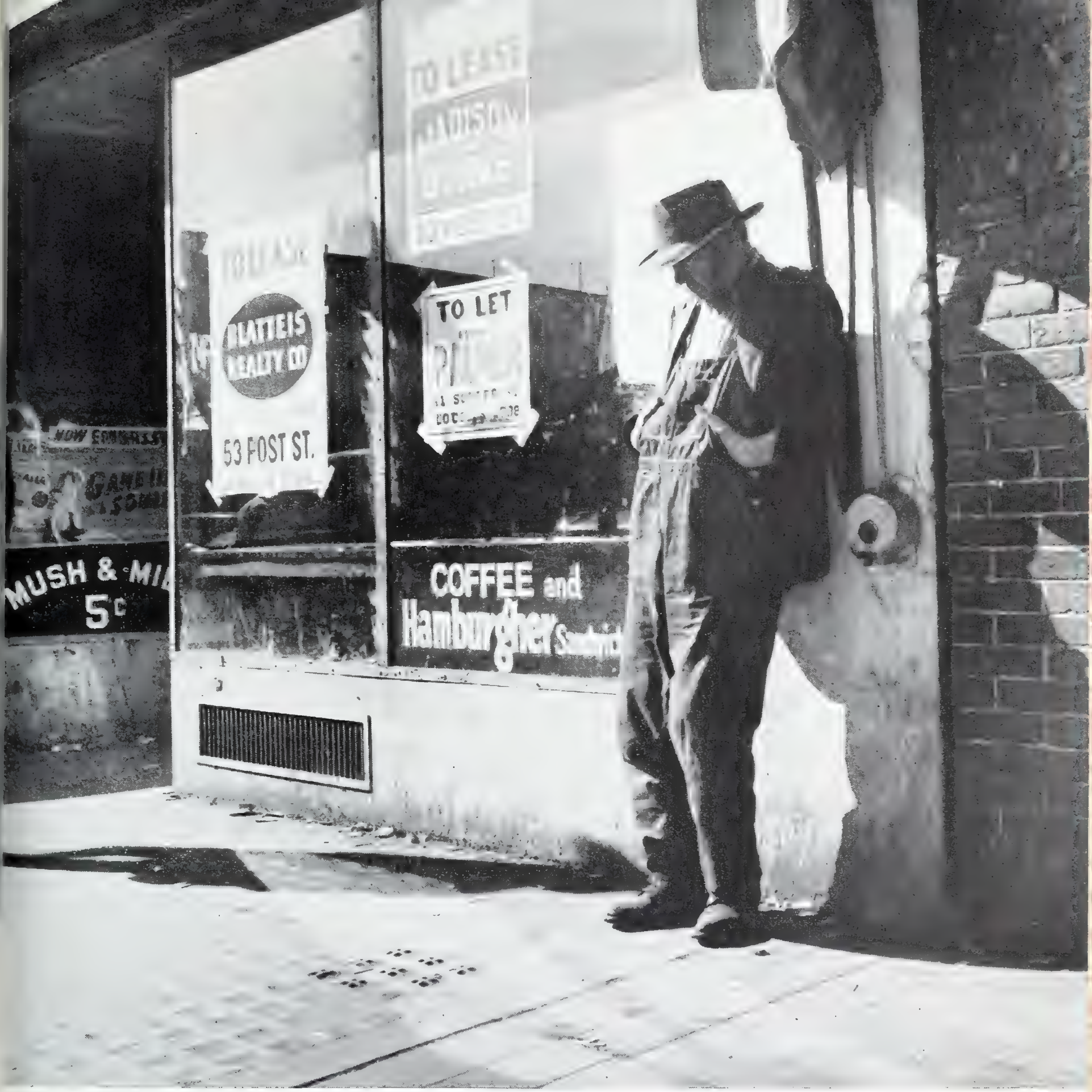
*Flagstaff, Ariz., a permanent forest community.*

WE CAN have permanent industry and stabilized communities—



F-306105

OR GHOST towns.



FSA–16153E

WE CAN have unemployment, dejection, despair—

F-382739

OR JOBS and security for the large section of our population dependent upon forest industry—and better citizens for a stronger nation.

*A*–F–381456, *B*–F–383224, *C*–F–395264, *D*–F–381473

THE FOREST situation requires public cooperation, Federal and State, to aid private owners in such things as forest protection, research, forest extension, reforestation, forest credits, more equitable taxation, establishing cooperatives, etc. The primary purposes of public cooperation are to help overcome obstacles and to stimulate private action.

But reasonable public controls are also needed to insure cooperation of private owners sufficient to stop deterioration and destruction of the resource, to keep the lands reasonably productive, and to safeguard the public interest and public investments in forest lands.

The situation also calls for community, State, and Federal acquisition of problem areas, improved administration of national forests, and an adequate forest-research program to serve the consuming public and all forest landowners and users.

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